AY 11, 1953

STEEL

THE WEEKLY MAGAZINE OF METALWORKING

MATERIALS HANDLING

SHOW ISSUE

✓ Make Your Handling Pay, p. 116

✓ Simplified Lift Truck Specifications, p. 122

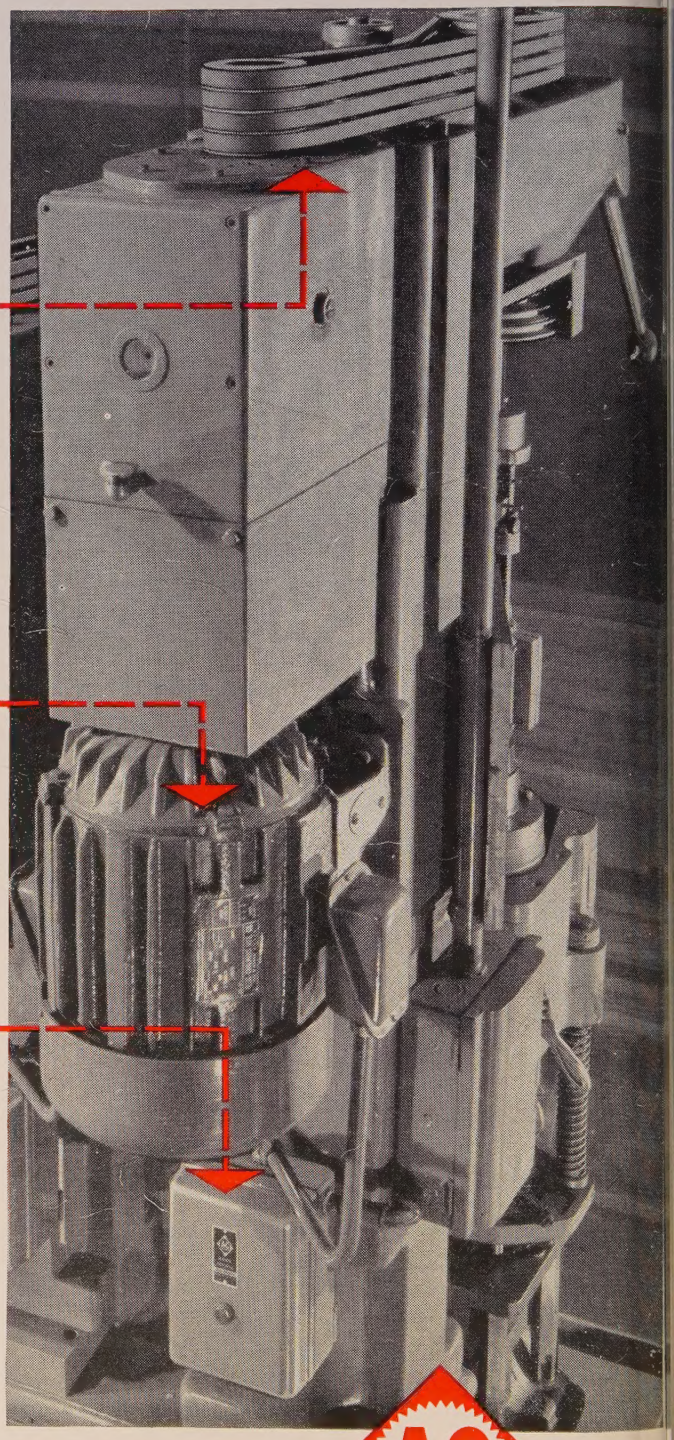
✓ Program, p. 127 Exhibitors, p. 128

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Designed to Work Together

Texrope Drives

Texrope V-belt drives, the original multiple V-belt drive, are available in a complete range of types and sizes, both fixed and variable speed. More and more machine designers are finding the moderate cost of *Vari-Pitch* sheaves is returned many times in increased machine versatility and more precise quality control. With either Stationary Control or Motion Control *Vari-Pitch* sheaves, speeds can be accurately adjusted quickly and easily over a wide range.



Motors

The increasingly high cost of maintenance labor has made the use of totally-enclosed, fan-cooled motors on machine tools more popular — and more profitable — than ever. This Allis-Chalmers TEFC motor is especially well suited to this application because it has no enclosed cooling air passages. Since all cooling surfaces are exposed, the motor is easy to clean with cloth, air or vacuum cleaner. Even with the oily atmosphere of many machine shops, dirt wipes off easily.

Motor Control

Allis-Chalmers motor control is available for most designers' applications from size 0 up. Allis-Chalmers builds many types of squirrel cage and wound rotor motor control, dc motor control and variable speed control for many applications. Shown here is a full voltage across-the-line starter with reset button.

Nation Wide Service

Nearly 100 Allis-Chalmers Certified Service Shops throughout the country provide factory-approved parts and service on Allis-Chalmers drive equipment. Complete information on special equipment also is provided.

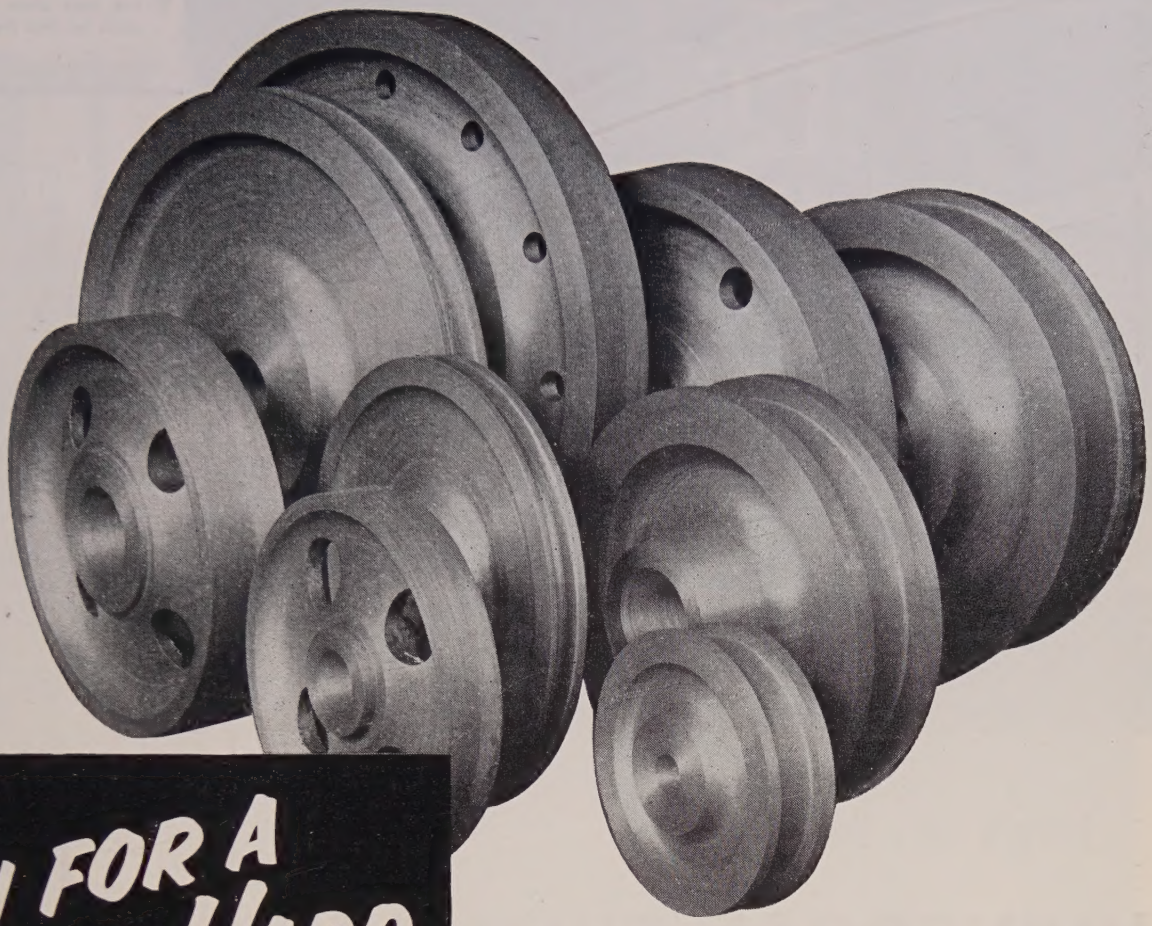
Get the help of your Allis-Chalmers District Office representative on your drive plans. Call him or write for Bulletins 51B6052, 20B6051, and 14B7733. Allis-Chalmers, Milwaukee 1, Wisconsin.

A-4005

Texrope and *Vari-Pitch* are Allis-Chalmers trademarks.

ALLIS-CHALMERS

A-C ALLIS-CHALMERS



IN FOR A LIFE OF HARD LABOR

Shown here are several types of Bethlehem rolled-and-forged circular blanks which are, as you can see, very sturdy specimens. They will be used in different kinds of work, but one and all, they are in for a life of hard labor.

These blanks, and all similar blanks made by Bethlehem, are strong and homogeneous—strong, tough steel from rim to rim. You'll find them perfect for gears, crane wheels, sheave wheels, turbine rotors, flywheels, and other rugged parts that work day in, day out under very heavy loads.

A special process involving both rolling and forging produces uniform density of metal and an excellent grain flow. As a result, something more than strength is achieved. Because of the firm, solid steel all the way through, the blanks machine dependably and easily, with no hidden trouble down beneath. No flaws that can mean discarding a piece after expensive preliminary cuts have been taken.

And speaking of machining: we furnish the blanks rough-machined, so that there's a minimum of finishing work for you, the customer.

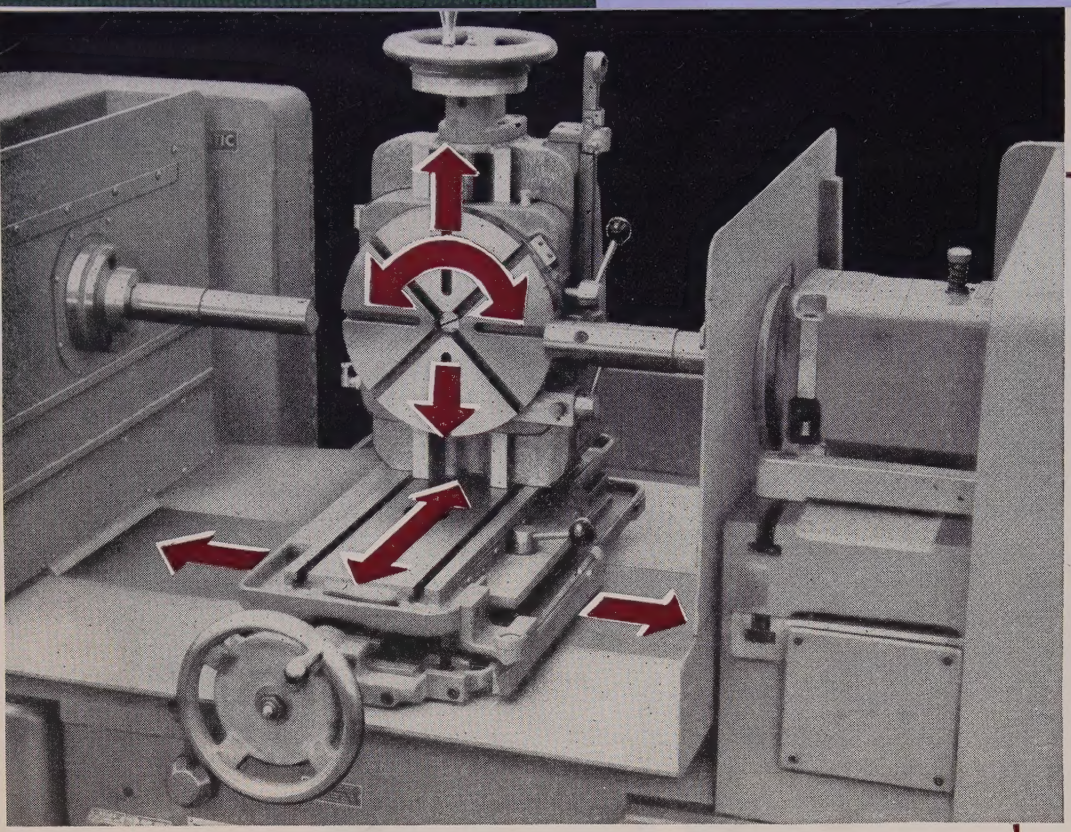
Bethlehem circular blanks are available untreated or heat-treated, in sizes ranging from approximately 10 to 42 in. OD. Ask for particulars—or write for a free copy of illustrated Booklet 216.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

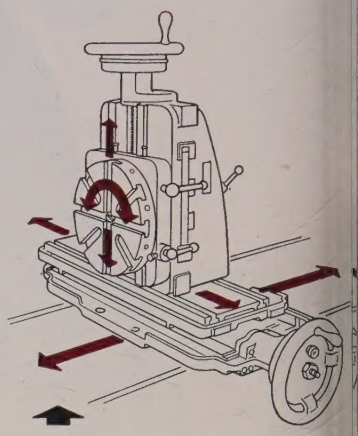
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

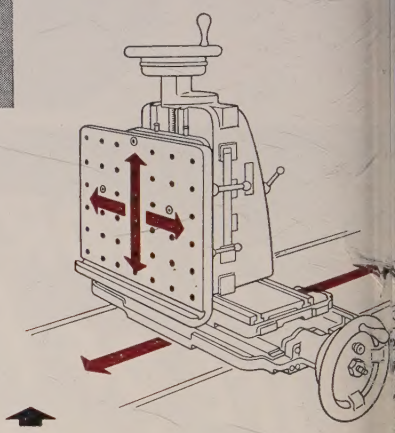
BETHLEHEM ROLLED-and-FORGED CIRCULAR PRODUCTS



Heald Universal Fixture with rotary i
ing face plate permits borizing fro
ends on this Heald Model 322 Bore



Heald Universal Fixture with rotar
indexing face plate mounted parall
to cross slide.



Heald Universal Fixture with rectangul
face plate mounted parallel to cross slid

Here's why the Heald

UNIVERSAL FIXTURE

gives MAXIMUM VERSATILITY for small-lot borizing

● The accuracy, finish and economy of Heald Borizing is not limited to long-run jobs with special, custom-built fixtures and tooling. A standard machine, equipped with a Universal Fixture, offers maximum versatility for small-lot borizing on a wide range of miscellaneous parts.

This time-saving Universal Fixture permits indexing of work or tools horizontally, vertically or angularly. Multiple surfaces can be bored, faced or turned with "jig-borer" precision at a single set-up.

The vertical and horizontal slides can be equipped with calibrated handwheels, gage blocks and integral dial indicators for maximum precision of fixture adjustment. This cuts set-up time, speeds change-overs, and permits exact duplication of settings for repeat jobs.

Two styles of Universal Fixture are available— either a rotary indexing face plate or fixed rectan face plate for holding the work, tools or auxiliary fix With either type, the face plate can be mounted pa to the machine table ways or parallel to the cross travel. Universal Fixtures are more usually applied to els 221, 321, and 421 (single-end) Heald Bore-M Double-end setups on the two larger size models 32 422 have proved successful where circumstances p

Ask your Heald representative for complete deta this Universal Fixture. Or write for your copy of B No. 7-25-1. Remember—when it comes to precisio ishing, it pays to come to Heald.

HEALD

Case Study
No. 2239-96 in
PRECISION
PRODUCTION

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PRODUCTION STORY... 68 more molds a day per man that can cut your foundry costs

mer Method: Best production ... ly 32 complete molds a day per man. ight and size of molds required e man and one machine for copes ne . . . another man and another chine for drags.

sent Osborn Rota-Lift Method: Pro- ction . . . 100 complete molds a day r man, 68 more per day than before. w one man using one machine, an born Rota-Lift, *makes both copes and gs.* The molds are more accurate, re uniform . . . cost less to produce.

Results like these with Rota-Lift using match plate patterns are typical in foundries throughout the country that have mechanized their molding operations with Osborn machines. And the results can be duplicated in your plant.

By eliminating heavy manual effort, Osborn machines utilize the molder's skill to peak advantage in the production of quality molds. Many Osborn machines are also equipped with automatic controls to turn out complete molds on preset time cycles. This means peak efficiency . . . lowest cost per mold.

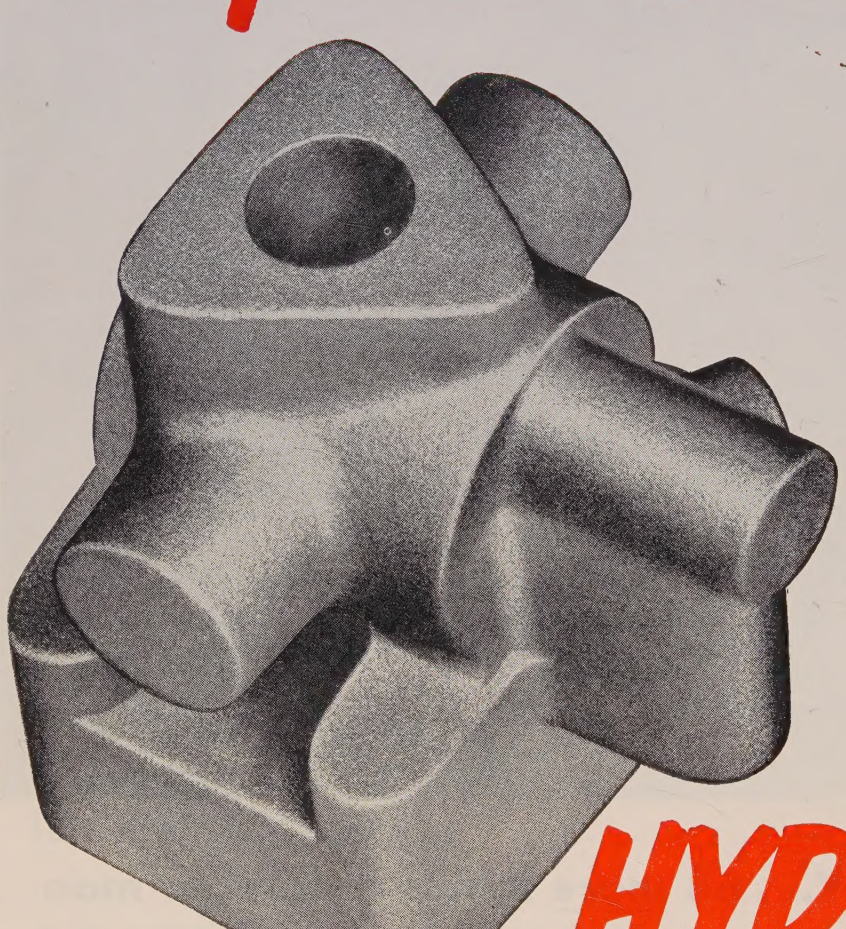
Take advantage of Osborn's latest molding techniques developed to conserve molding man-hours and cut foundry costs. An Osborn factory-trained molding specialist will gladly survey your needs and show you how. Call or write *The Osborn Manufacturing Company, Dept. EE-5, 5401 Hamilton Avenue, Cleveland 14, Ohio.*

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for HYDRAULIC CONTROLS



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This Week in Metalworking

STEEL

Vol. 132 No. 19 May 11, 1953

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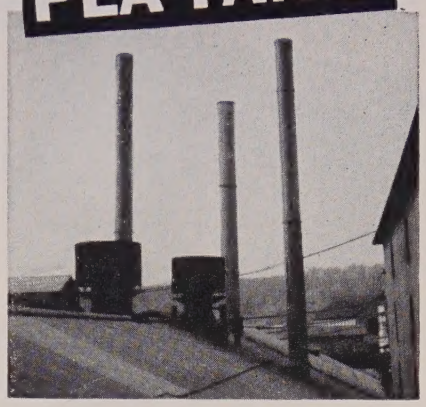
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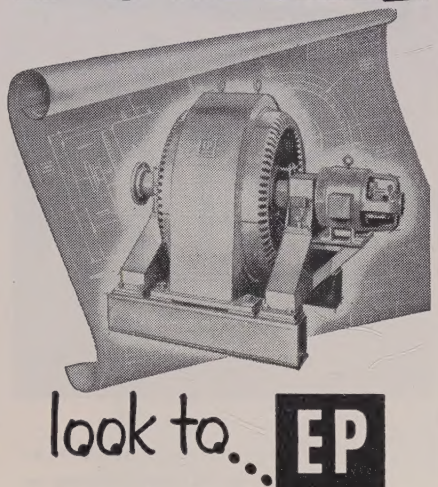
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are available now in diameters to 54".

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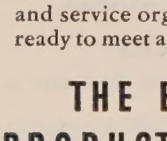
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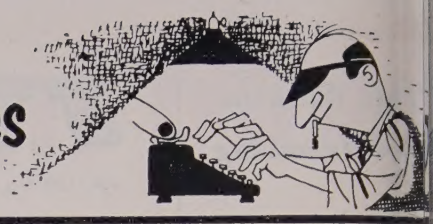
COMPANY_____

STREET_____

CITY_____ ZONE____ STATE_____

X-74

behind the scenes



We'll Never Believe It

The age-old but inevitable argument came up one day last week about what a Scotsman wears under his kilts. We secular squares were arguing the case with the usual vehemence and cocksuredness of the ignorant. There was one amongst us, however, who contributed his views with the wordly air of a blooming cosmopolite. And beat us for an ironmonger's kettle if the blighter didn't turn out to speak from experience.

Here's a snap of the chap. None



other than Hal Rowland, Central Eastern Regional Manager for STEEL.

This photo was taken eons ago when Rowland, an Englishman by birth, was serving in Her Majesty's now famous (thanks to men's shaving accessories) Seaforth Highlanders during World War I.

He swears that Scotsmen wear nothing but OEM under their kilts.

Shrdlu's Chagrined

You're young only once. After that it becomes necessary to think up a new line of excuses for what you do wrong.

Why this philosophic gem? Because we went and stubbed our editorial toe. Two weeks ago we proudly announced that STEEL's *Guide for Stainless Steel Buyers* would be published as a supplement to the May 18 issue. We should have s June 22 issue. We certainly pied d type on that one and we're sorry

You won't like the *Guide* any l for having to wait a wee bit long for it. Fact is, it will be better th ever. The plan now is to publish as a supplement to the June 22 iss In other words, it will be a self-c tained package printed on dura paper with a long-wearing cover as to stand up under the continu reference use for which it has be designed.

It will be mailed to you in the sa envelope that brings you your Ju 22 issue so be on the lookout for

Living-it-up Language

We were talking to the Expo Sales Manager of a large Metalwor ing outfit the other day who told that he had instructed some of l field men to polish up on th knowledge and use of foreign la guages.

It was six weeks after he had ma this suggestion that the following e pense report from one of the m came to his attention:

Spanish	$15.00
French	15.00
Scotch	100.00

This guy's use of the language w positively fluid.

On the Ocean Waves

From this same gentleman, were pleased to learn of additon evidence that STEEL is fast beco ing the most widely and authorit tively quoted metalworking public tion in the country. He showed a copy of *Ocean Times,* Monda April 20, 1953 issue. This is a da newspaper published aboard t liners of the Cunard Steam Sh Company Limited. This particul issue, picked up on board the Que Elizabeth, carried a lead story und the headline "Stable U. S. St Prices" quoting STEEL's analysis the metalworking market as scribed in its April 20 issue.

Shrdlu

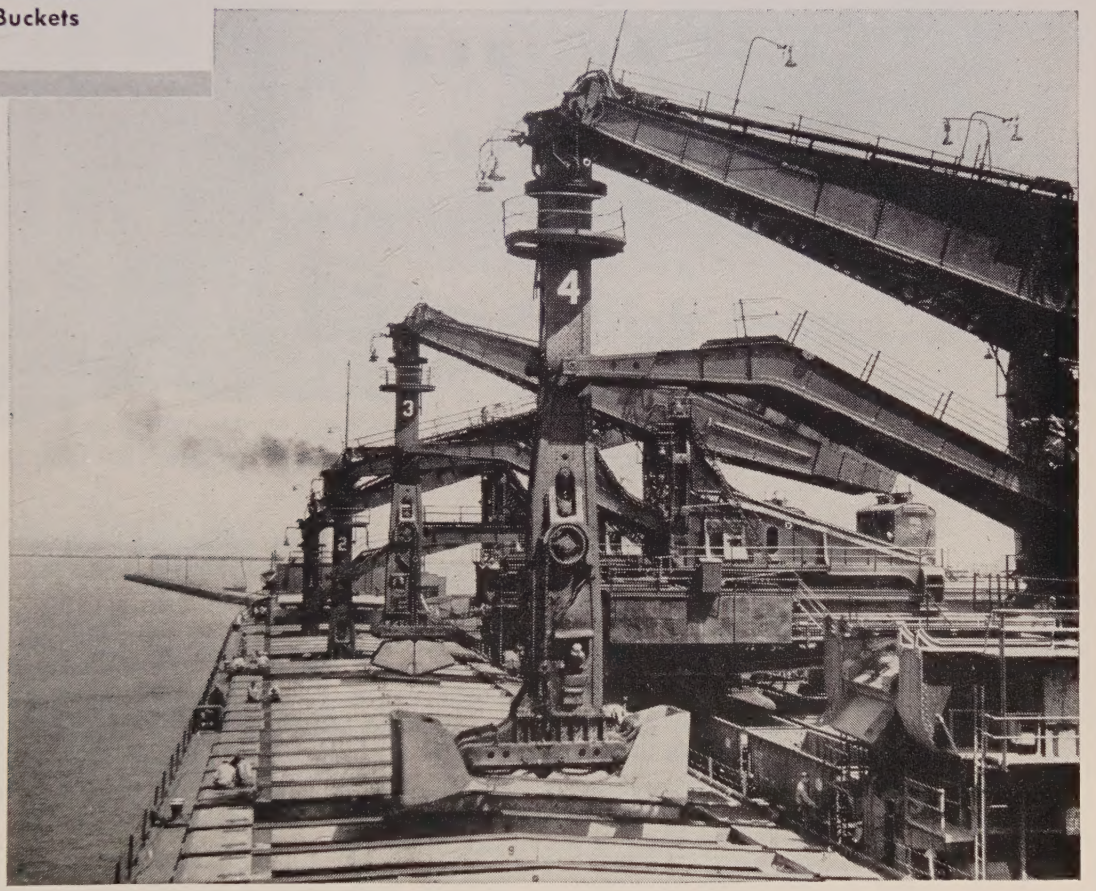
(Metalworking Outlook—Page 67)

Wellman will build it

Special Cranes
Ore Unloaders
Charging Machines
Forging Manipulators
Car Dumpers
Gas Flue Systems
Gas Reversing Valves
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Ore and Coal Bridges
Clamshell Buckets

Exclusive Wellman Hulett-Type ore unloaders

handle most of lake-shipped ore



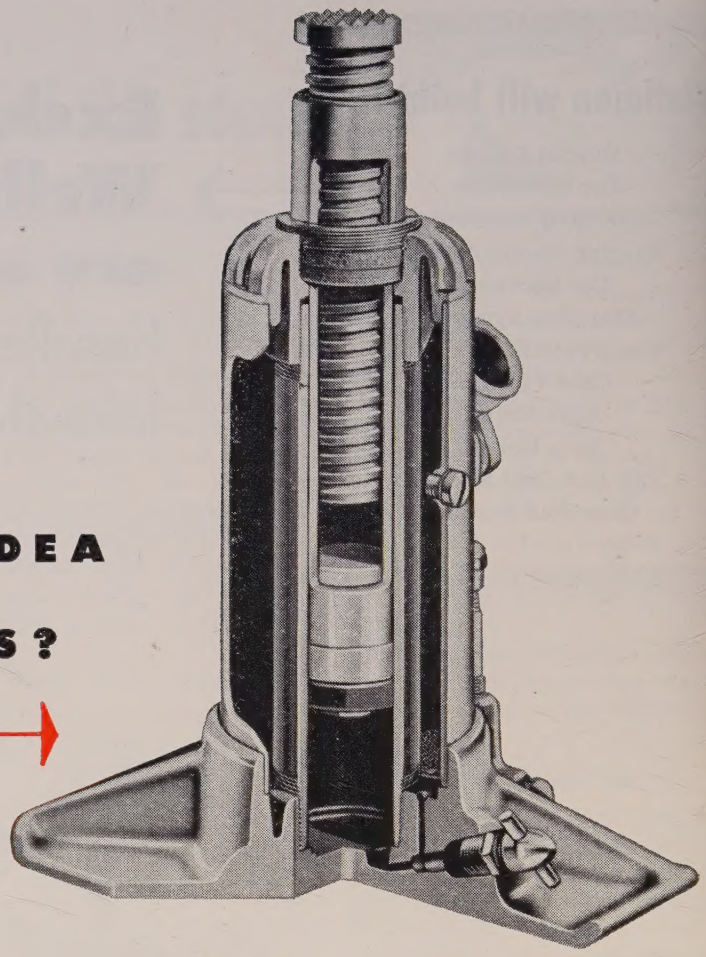
Four of an installation of five Wellman Hulett-Type unloaders in use at one of the largest ore docks on the Great Lakes.

• Wellman Hulett-Type unloaders handle by far the most of all lake-shipped ore. Their speedy, dependable performance contributes much to the economy of the modern ore dock. They are a product of Wellman's more than half-century of engineering experience and achievement.

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. . . through replacement and modernization by mechanizing your materials handling methods. There is no better way to meet your time schedule and cut costs while keeping production at peak performance than with an industrial electric truck.



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BOOTH 1245- Materials Handling Show

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LETTERS
TO THE EDITORS

Comparing Foremen's Pay

We have read your article "Foreman Importance Grows with Industry" (A 20, p. 79) with great interest.

The figures showing "average mon ly earnings" were also of interest, b their value for comparison is grea reduced, because the average numb of hours worked per week was not not We assume the figures shown are d shift figures.

Erwin M
vice presid
G. A. Gray
Cincinn

• *National Foremen's Institute In New London, Conn., says that it c culated average salaries, taking into count average overtime. The institu further says that many foremen are n on an hourly scale but are paid a regu weekly or monthly salary that does take into account overtime. We, t assume the figures given by the institu are day shift figures.—ED.*

A Look at Executive's Pay

We're interested in obtaining a co of the report "Executive Pay Plans" William J. Casey and J. K. Lasser, mentioned in your "Metalworking Ou look" of Feb. 2, p. 64.

I believe this report is published Business Reports Inc., but I do n have the address.

R. C. T
treasu
Porter-Cable Machine
Syracuse, N.

• *The address is 225 North 34th Stre New York 1.—ED.*

Counting the Cost

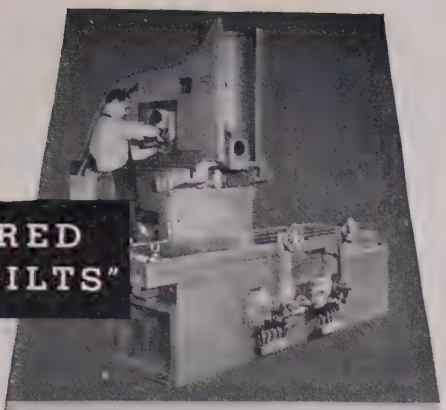


I have read with considerable i terest your article "Reuse Waste Pick ing Liquors" (Apr. 27, p. 130) regar ing the Blaw-Knox Co.'s process to r cover sulphate pickling liquor in t steel mills. But, I am somewh puzzled at the figures given for the d posal of pickling liquors in the prese mode of operation on p. 133 (" get rid of a ton of equivalent acid this method, costs nearly as much did the purchase of the original ton.

In most of the plants I have person ly contacted, I find their costs of d posing the spent liquor considerab above the cost of the acids used p ton of steel. In some plants it is e ceeding that amount by about thr times the cost of sulphuric acids p ton.

In one plant, where the total amou

Please turn to page 12



NGINEERED "REBUILTS"

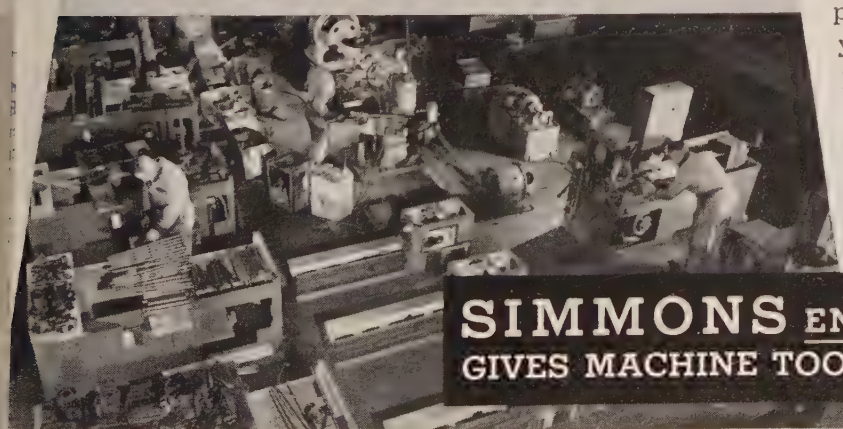
This complex hydro-tel, rebuilt in 12 weeks, would have taken at least three times as long to get new.



Surface grinding of flats and angles to tolerances as close as 0.002" is done by this specially-designed planer-type grinder accommodating castings 74" wide, 72" high, and up to 40' long.



Back on the production line, as good as new, this Simmons-rebuilt lathe—equipped with roller bearing steady rest—threads, turns and faces carbon electrodes 10' by 35".



Engineered Rebuilding starts with dismantling down to main castings, thorough cleaning, replacing of all worn parts, refinishing of all sliding surfaces. Reassembled, the machine operates at original peak capacity.

Here's how rebuilding gives you guaranteed dependability

Machine tool rebuilding cuts delivery time by 50% and more, boosts output. Also, rebuilding *can cut new cost in half.* These decisive facts are of top importance. But topping even this for you as a Plant or Maintenance Engineer is: Will they stand up? Can they *"take it"?*

Every Simmons Engineered "Rebuilt" bears an unconditional guarantee. That's why Simmons is recognized as the outstanding rebuilder of *large* machine tools... by so many satisfied customers. That's why firms like General Electric, Westinghouse, Timken, and American Locomotive use Simmons again and again.

Rebuilding is *easy* for *you.* Follow this simple plan:

1. On your next maintenance check, note especially those complex, hard-to-replace machine tools. Are they operating as well as they might?

2. If not, list the ones you can *temporarily* spare.

3. Send us your list of these machines. We'll promptly quote prices and deliveries. And you'll receive our information-packed periodical, *The Simmons Way.*

Simmons Machine Tool Corporation
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Philadelphia Office: Phone Victor 8-3133
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Columbia Steel & Shafting Co.
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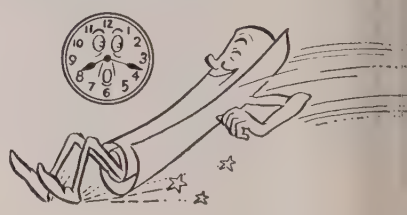
LETTERS

Concluded from page 10

of steel pickled did not exceed 1(tons per day, I was informed that the total cost of disposing the spent liqu did not exceed $16.00 per day. I checke into their mode of operation for dispo ing the spent liquor and found a stea shovel and two dump trucks in operatio eight hours per day. When I broug this matter to the attention of t powers to be, they informed me th the latter expense was not charged disposal but to regular maintenance.

Claudius Niels
presid
Nielco Laboratori
Detro

Copper No Stopper Now



I have just read your wrap-up sto on copper "No Stopper from Copp as Shortage Ends" (Apr. 20, p. 67) an I want to say that I think you did a excellent job with a difficult subject.

Also, the timing turns out to hav been pretty terrific—so much so tha one might say you called the turn ju at the right time.

J. F. Hobbi
advertising manag
Anaconda Copper Mining C
New Yo

. . . an excellent summary of the co per situation.

Simon D. Strau
sales departme
American Smelting & Refining C
New Yo

. . . very much appreciated.

C. K. Le
president & sales manag
Kennecott Sales Cor
New Yo

Management Series Boost

I read with great interest your artic "Let's Do Our Part in This Busine of Government" (Mar. 30, pp. 53-6 Second in the Management Series Many congratulations on this compre hensive job.

I would greatly appreciate havi five or six reprints.

C. Lyle Belsl
assistant administrator f
industry advisory committe
Department of Commer
Washingt

Wad Ores Wanted

In your article "Manganese Researc Widened" (Apr. 13, p. 66) there is mention of the wad ores of New Mexi and Arizona. I would very much a preciate knowing whom I should wri to obtain some small samples of the ores.

L. B. Lindemu
L. B. Lindemuth In
New Yo

• *Write to Southwestern Engineeri Co., Los Angeles.—ED.*

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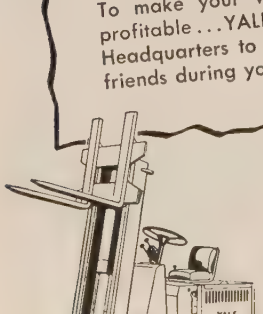
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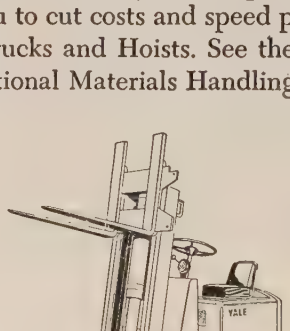
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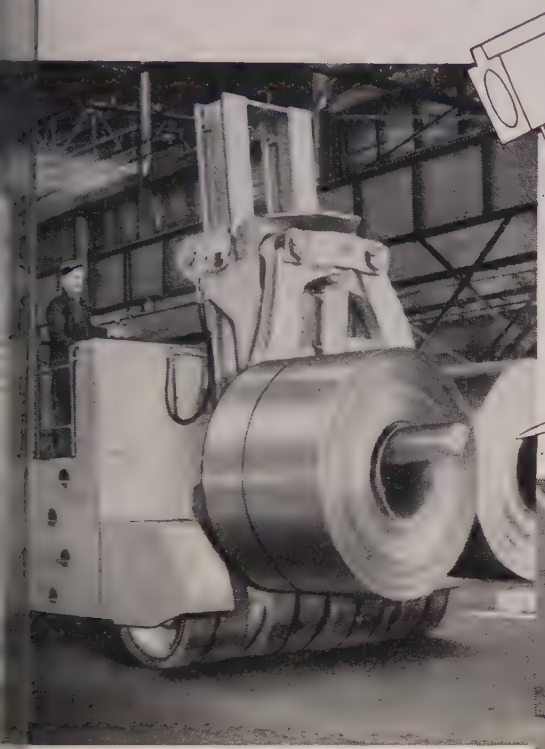




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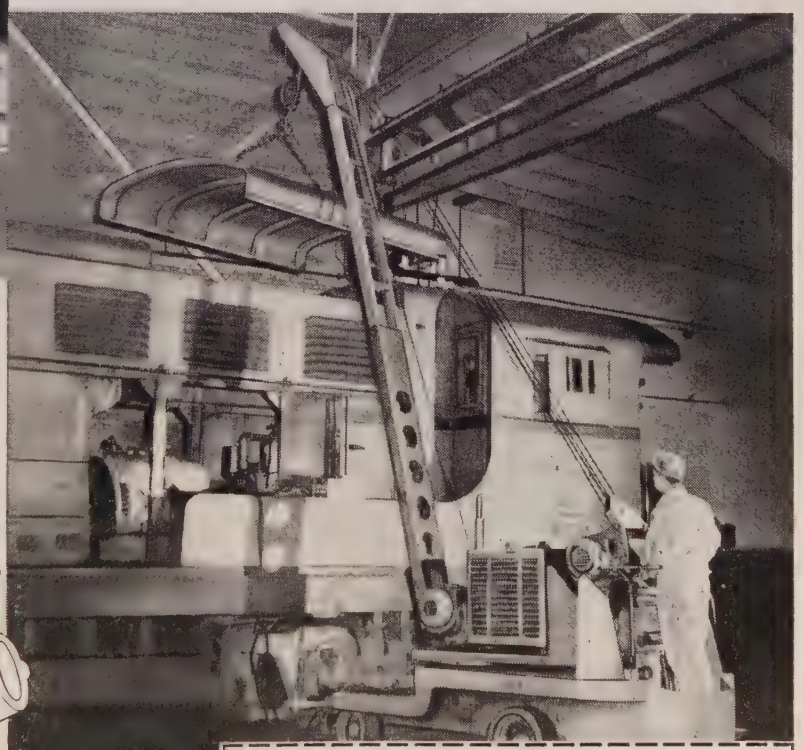
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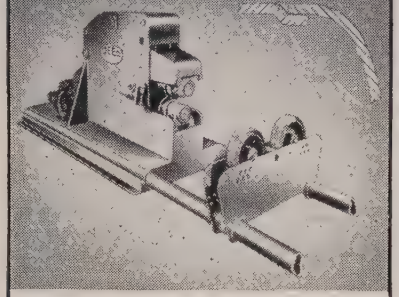
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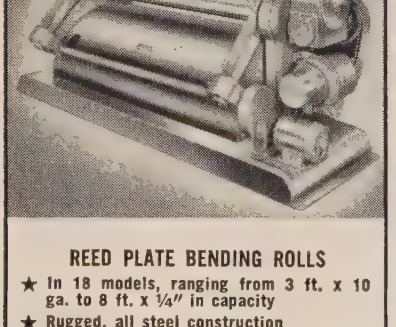
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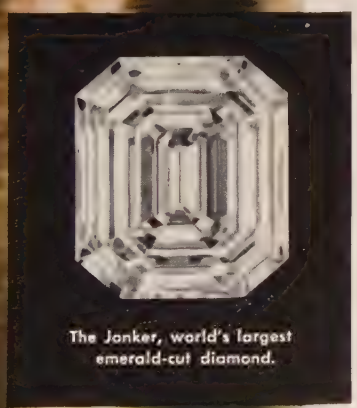
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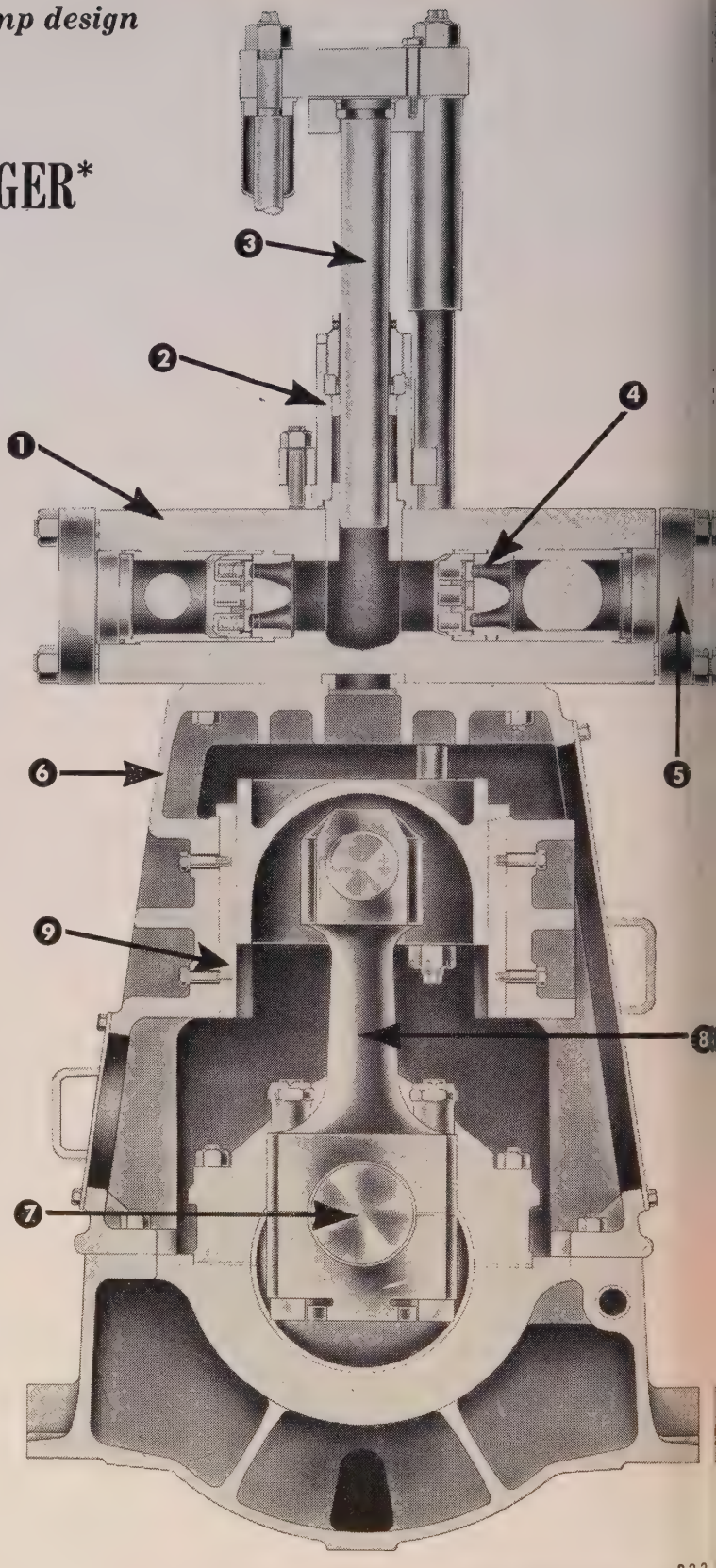
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P.2.2



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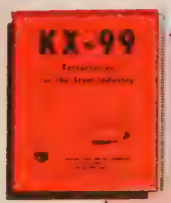
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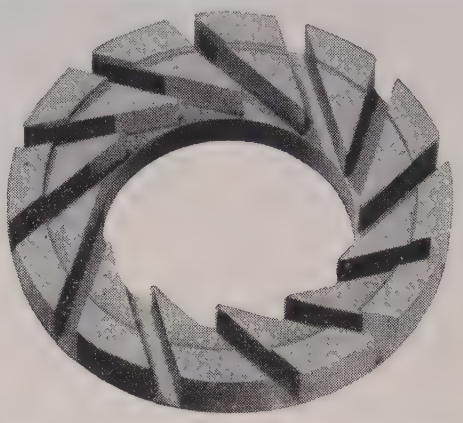
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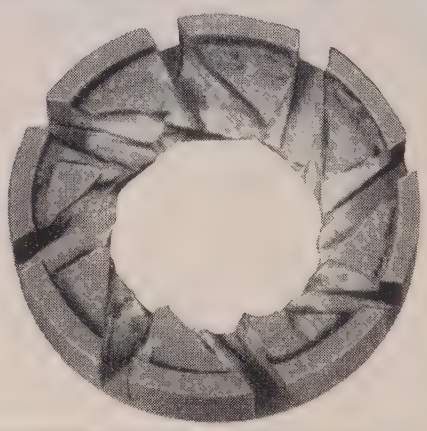
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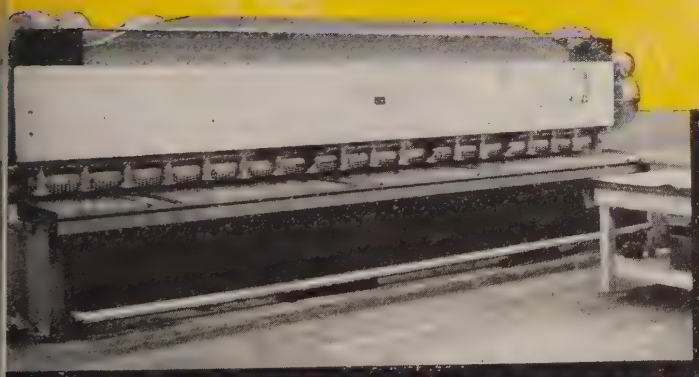
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CINCINNATI Shears at CONVAIR



This $\frac{3}{16}$" x 18' Cincinnati All-Steel Shear, one of the Cincinnati units at Convair, has the length to cut full length standard sized sheets.

Photos: Courtesy Consolidated Vultee Aircraft Corp., Fort Worth, Texas.

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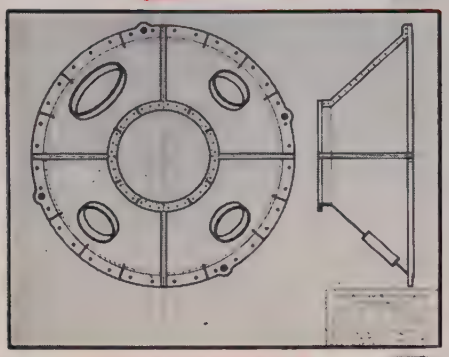
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Blast furnace STEEL WORK

POLLOCK

THE WILLIAM B. POLLOCK COMPANY

YOUNGSTOWN · OHIO

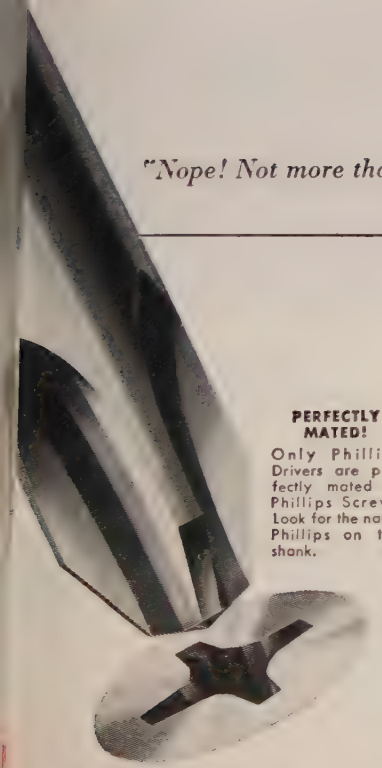
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BLAST FURNACES · HOT METAL CARS AND LADLES · CINDER AND SLAG CARS · INGOT MOULD CARS · CHARGING BOX CARS · WELDED OPEN HEARTH LA

What's Screwy? by Phillips



"Nope! Not more than 3 Phillips Recessed Head Screws for the lot. After all, it's only ivory."



PERFECTLY MATED!
Only Phillips Drivers are perfectly mated to Phillips Screws. Look for the name Phillips on the shank.

SALES VALUE is only one of many advantages added to your product when you use Phillips Screws. These screws also save money, work, time. They eliminate driver skids, damaged parts and split screw heads. They cut driving time up to 50%. And they set up tighter having a maximum strength of head due to their design. For best results, choose Phillips Wood, Machine, Tapping Screws or "Sems."

PHILLIPS *Cross-Recessed-Head* SCREWS

X marks the spot... the mark of extra quality

AMERICAN SCREW COMPANY • ATLANTIC SCREW WORKS, INC. • THE BLAKE & JOHNSON CO.
CENTRAL SCREW COMPANY • CONTINENTAL SCREW COMPANY • THE EAGLE LOCK COMPANY
ELCO TOOL AND SCREW CORPORATION • GREAT LAKES SCREW CORPORATION • THE H. M. HARPER CO.
THE LAMSON & SESSIONS COMPANY • NATIONAL LOCK COMPANY
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PHEOLL MANUFACTURING CO. • ROCKFORD SCREW PRODUCTS CO. • SCOVILL MANUFACTURING CO.
SHAKEPROOF DIV. OF ILLINOIS TOOL WORKS • THE SOUTHINGTON HDWE. MFG. COMPANY
STERLING BOLT COMPANY • WALES-BEECH CORP.



TODAY'S . . . AND THE FUTURE'S . . . FINEST FASTENER

New Idea . . .
IN TESTING CASTINGS FOR LEAKS

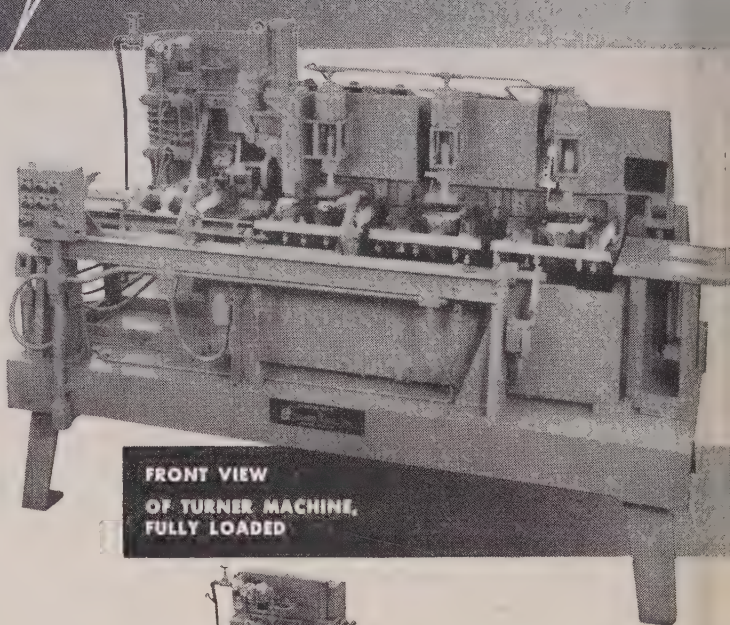
TURNER MACHINE PRESSURE TESTS AND ISOLATES THE LEAK AUTOMATICALLY!

Designed to leak-test manifold castings, or any other type of leak-proof castings.

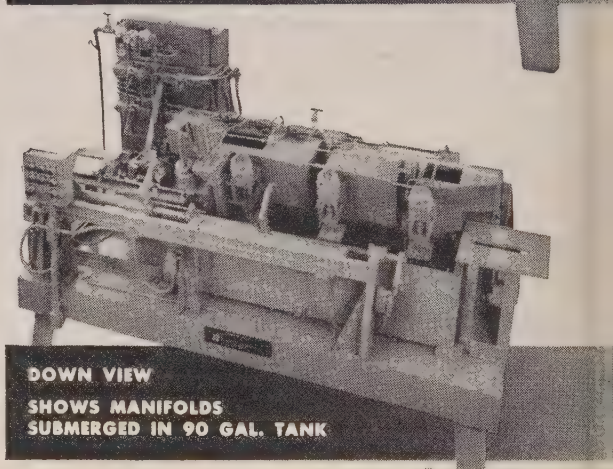
The Turner machine illustrated checks simultaneously at separate stations:

1. **Water connections and heating cavity.**
2. **Lower sections of intake cavities.**
3. **Upper section of intake cavity.**

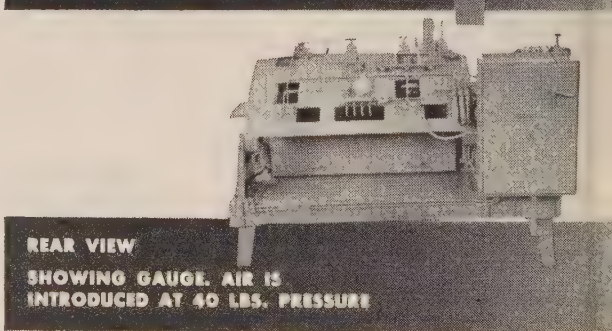
And, any leak is isolated automatically! That's the big advantage over pressure gauge testers!



FRONT VIEW
OF TURNER MACHINE, FULLY LOADED



DOWN VIEW
SHOWS MANIFOLDS SUBMERGED IN 90 GAL. TANK



REAR VIEW
SHOWING GAUGE. AIR IS INTRODUCED AT 40 LBS. PRESSURE

Specially designed to save manpower as well as accurately test for casting leaks, the Turner machine performs each step automatically. The manifolds are picked up from the automation station, brought into loading position, then transferred to each testing station. When parts are in position in the fixtures, the machine clamps them into place and seals all openings. By means of air cylinders, the parts are then dropped into a 90 gal. water tank, deep enough to completely cover the parts. Remaining submerged for about 15 seconds which allows the operator ample time to detect and mark any leak. The head then automatically comes back to its original position and the transfer mechanism picks up another part . . . at the same time ejecting the checked part onto the automation system.

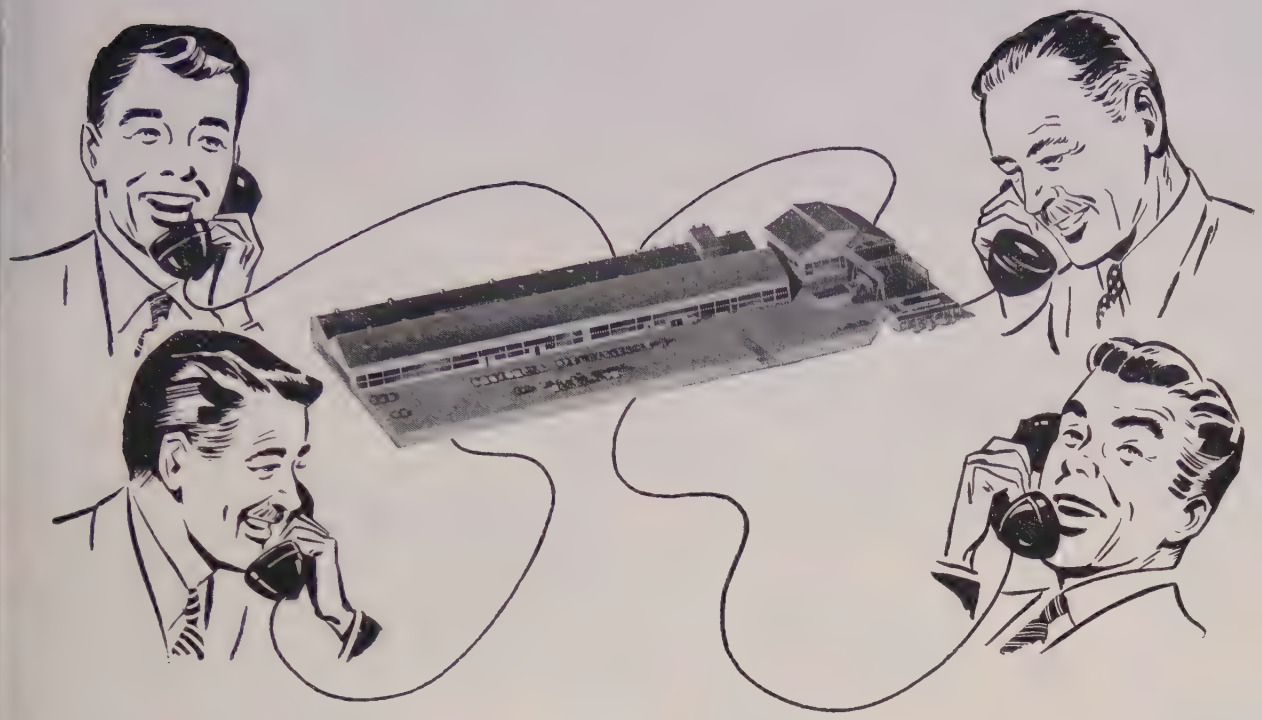
More accurate, and even more economical than other methods of checking casting leaks, the new Turner machine can be adapted to any type or size of similar leak-testing application. It's designed to help save manpower, inspection time and floor space . . . while increasing production!

If you have a production assembly or inspection problem where you can use to advantage a special purpose machine, write today describing your problem. After our engineering department analyzes it, our field engineer will discuss it with you.

TURNER BROS. INC.
2625 HILTON ROAD
FERNDALE 20, MICHIGAN

DESIGNERS and BUILDERS of:
- SPECIAL MACHINES
- JIGS and FIXTURES





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Superior Tube Company, manufacturers of fine small tubing in all analyses from .010" to 5/8" O.D. and in certain analyses (.35" max. wall) up to 1 3/8" O.D.

Sizes and Analyses

TUBING

SEAMLESS CARBON
MT—1015, 1020, 1025
Round: 3/16" O.D. to 2 3/4" O.D.
Square: 1/4" to 2" O.D.

SEAMLESS ALLOY
4130—NE 8630
Round: 3/16" O.D. to 3 3/4" O.D.
Square: 1/4" to 2" O.D.

CHROME
4 5/8-6 5/8, 6 5/8-8 5/8, 8 5/8-10 5/8
3/16" to 1 7/8" O.D.

STAINLESS STEEL
Seamless and Welded
Types 304, 316, 321, 347
Round: 1/4" to 2 7/8" O.D.
Square: 1/4" to 1 7/8" O.D.

WELDED CARBON TUBING
3/4" to 3" O.D.

BARS

C-1018, B1113, G1137, FS1117
COLD FINISHED
3/16" to 2 1/2"

For Other Shapes, Contact Mill

YOU CAN'T BEAT **PATCO** FOR TUBING

PACIFIC TUBE COMPANY

First Steel Tube Mill in the West

PACIFIC TUBE COMPANY
5702 Smithway Street
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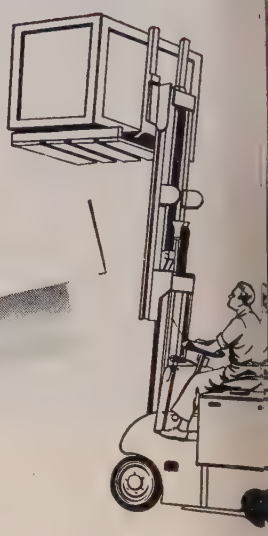
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CITY_____ ZONE____ STATE_____

The NEW T-H Exide-Ironclad

★ 20% more capacity in the same space

★ Lowest cost per A.H. to own and operate



Heavier demands on all types of battery-powered haulage equipment dictate the need for batteries with greater capacity.

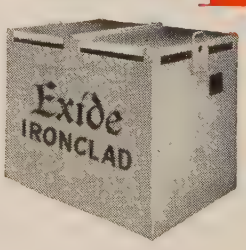
The new Exide-Ironclad T-H battery gives 20% more capacity in the same space—WITHOUT SACRIFICE OF LONG LIFE for which Exide-Ironclad Batteries are famous.

This new T-H battery is of the time-tested Exide-Ironclad construction, employing the exclusive slotted tube positive plate. New materials have made structural changes possible, which permit the use of larger positive plates—resulting in increased capacity.

The T-H line of Exide-Ironclad Batteries includes capacities for all battery-powered haulage units.

See Exide at the
Materials Handling Exposition
May 18-22, Philadelphia
Space 1549

Now-more than ever before...
YOUR BEST POWER BUY
AT ANY PRICE!



Thrifty Hauler

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelph
Exide Batteries of Canada, Limited, Toronto

1888—DEPENDABLE BATTERIES FOR 65 YEARS—19

"EXIDE", "EXIDE-IRONCLAD", "SILVIUM", "PORMAX", *Reg. T.M. U.S. Pat*


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ESE FEATURES
ONTRIBUTE TO THE
IGHER CAPACITY AND
LONGER LIFE OF THE
T-H BATTERY
LARGER
POSITIVE PLATES
of exclusive Exide-Iron-clad slotted tube construction.
POSITIVE PLATE SPINES
cast with the heavy top cross bars, are of SILVIUM, which resists corrosion — contributing to longer battery life.
SLOTTED PLASTIC TUBES
of non-oxidizing polyethylene—retain active material in contact with spines, yet permit the electrolyte to penetrate throughout the active material.
POLYETHYLENE TUBE SEALER
This acid-proof plastic sealer fits snugly into the bottom of positive plate tubes, sealing in the active material for a longer working life.
EXTRA HEAVY
NEGATIVE PLATES
to balance the new positive plates.
PORMAX SEPARATORS
Practically indestructible. Decrease internal resistance, thus assuring quick starting and rapid acceleration, plus lower operating costs.
CORROSION-RESISTANT
TRAY GUARD
A plastic, acid-resistant steel tray coating, with high insulating qualities and the ability to withstand hard knocks.
NEW QUARTER TURN
PLASTIC VENT PLUGS
Made of unbreakable polyethylene. Can be quickly and easily removed to add water.
HOMOGENEOUS
SEALING COMPOUND
resists shock, without cracking, at high or low temperatures. Forms a permanent seal between jar and cover.
MOLDED SEAMLESS
SHOCK-PROOF JAR
High quality rubber. Sturdy . . . built for a long life of heavy duty service.



COLD DRAWN BARS
GROUND SHAFTING
SCREW STOCK
EXTRA WIDE FLATS
ALLOY STEELS
SPECIAL SECTIONS

You will find it good business to make consistent use of B&L Cold Finished Bars for all your needs, because the uniform prime quality of these steels gives the same dependable results, day after day.

They are specialized steels, processed to fit the job . . . enabling you to increase production rates, improve surface finish and reduce unit part costs.

Available in a full range of grades . . . carbon and alloy . . . regular and sulphurized. Also furnace treated including Strain-Tempered to give desired physicals in your finished product.

Let B&L engineers advise you in getting the right steel grades for your job . . . in machinability . . . in hardenability . . . and dependability in service.

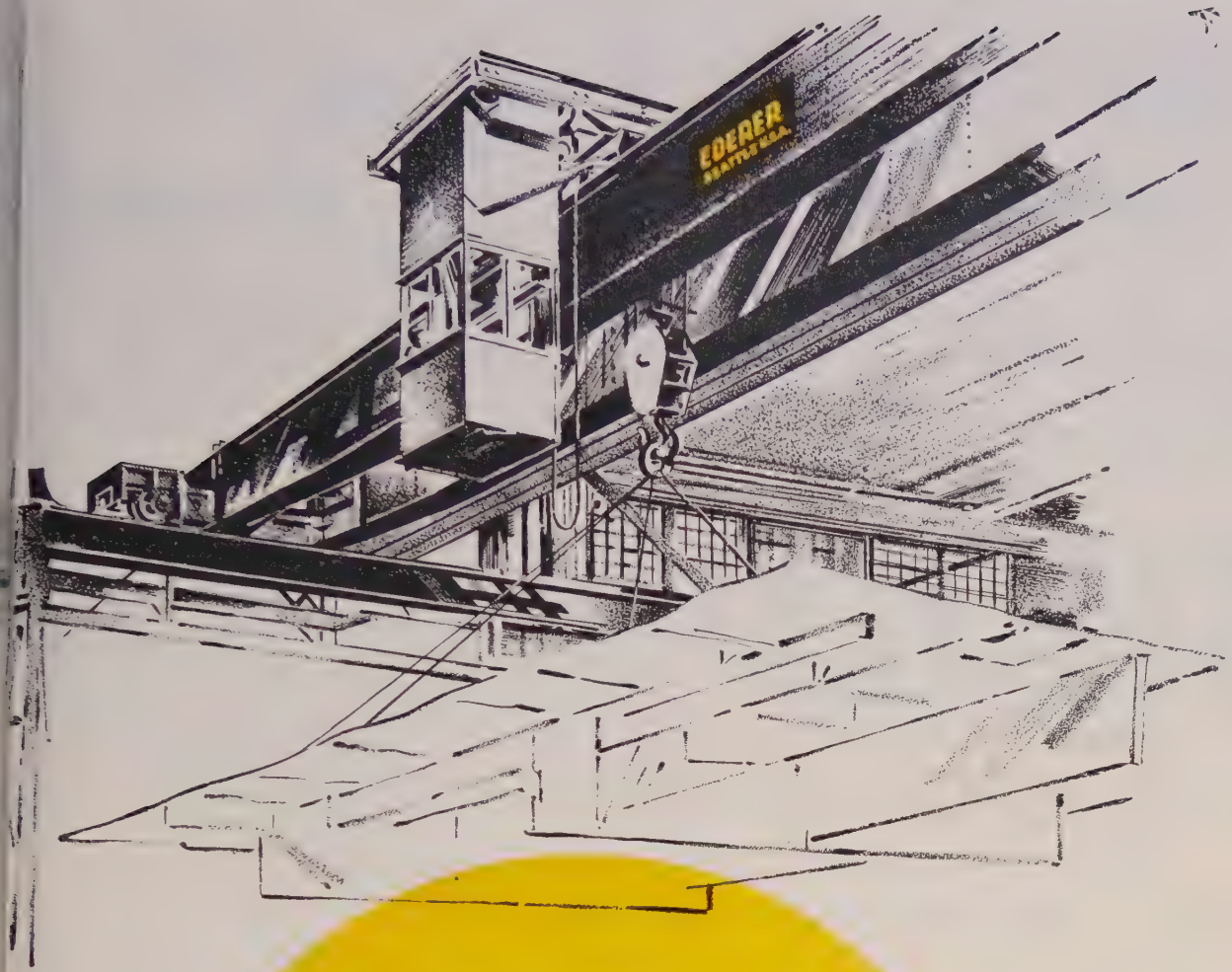
BLISS & LAUGHLIN, INC.

GENERAL OFFICES: HARVEY, ILLINOIS

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FOUR PLANTS: HARVEY, ILL. • DETROIT, MICH. • BUFFALO, N. Y. • MANSFIELD, MASS.

SINCE 1891



The EASY way to move heavy fabricated plate sections

This 15-ton, 80-foot EDERER crane was "job-engineered" to expedite the handling of heavy fabricated steel plate sections. The cab moves with the trolley, keeping the operator constantly "on top" of his load. EDERER's extra heavy duty construction makes for minimum maintenance, economical operation, lower cost-per-ton materials handling costs.

EDERER—one of the largest crane manufacturers in the West—can "job-engineer" a crane for your particular materials handling requirements.

Write for Crane Bulletin CR-500

230C53

EDERER

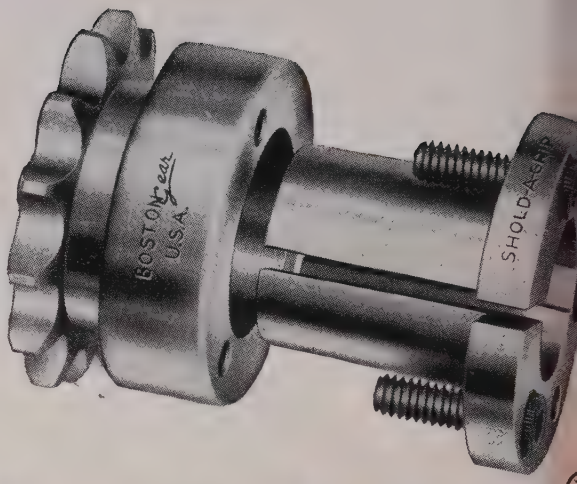
CRANES

EDERER ENGINEERING COMPANY • 2935 First Ave. So., Seattle 4, Wash.

Export Division: 301 Clay St., San Francisco 11, Calif.

OVER 50 YEARS "JOB-ENGINEERING" CRANES FOR INDUSTRY

NOW... *Correct Taper* FOR MAXIMUM GRIP *Correct Taper* FOR EASY REMOVAL



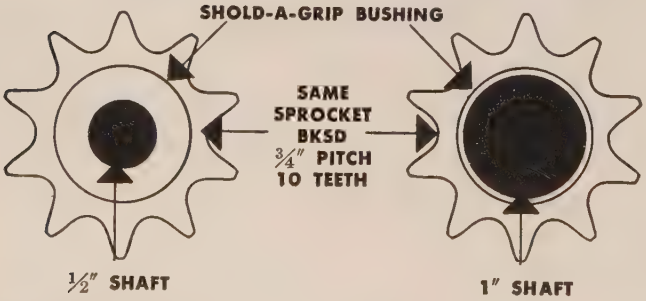
the NEW SHOLD-A-GRIP

INTERCHANGEABLE TAPERED BUSHINGS AND SPROCKETS

BROADER SIZE RANGE. FIT SHAFTS ½" to 2½" by 16ths

Any commonly used sprocket, ½" to 2¼" pitch, can be interchanged on an extended range of shaft sizes. SHOLD-A-GRIP's high-strength design restricts screw holes to sprocket shoulder. Thus, many smaller sprocket sizes are added to the interchangeable class.

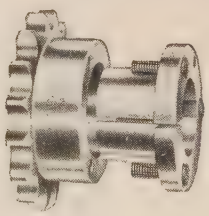
ONE SPROCKET FITS MANY SHAFT SIZES SIMPLY BY CHANGING THE BUSHING



Example: Sprocket BKSD, ¾" pitch, 10 teeth, can be used on **9** different shaft sizes, any size from ½" to 1" by 16THS by inserting the correct size SHOLD-A-GRIP Bushing.

Illustration at top of page is typical design of SHOLD-A-GRIP Bushing and Sprocket with minimum number of teeth.

Illustration at right is typical of design of SHOLD-A-GRIP Bushing and Sprocket with maximum number of teeth.



Correct Taper **FOR SLIP-PROOF GRIP**

Boston Gear expert engineering has provided a correct taper in SHOLD-A-GRIP Bushings and Sprockets for slip-proof grip. When screws are tightened the bushing grips both sprocket and shaft with maximum holding power, even on shafts which vary from true diameter.

Correct Taper **FOR EASY DISASSEMBLY**

Correct taper saves time and trouble in removal. Cap screws are removed, then two screws are driven in the two threaded holes in bushing flange. Tightening screws releases bushing—quickly, easily.

ASK YOUR NEARBY

BOSTON Gear DISTRIBUTOR

for complete information and descriptive folder, or write Boston Gear Works, 73 Hayward St., Quincy 71, Mass.

FOR POWER TRANSMISSION PRODUCTS, BEST BUY IS BOSTON Gear . . . OVER 5000 STOCK ITEMS

The trend is to more stampings with **BLISS** *Presses*



Largest knuckle-joint press in the world: bed area of 60″ x 70″, 40-inch die space, and six-station Bliss ratchet dial feed, 59″ dia., with electrical protection for safer indexing.

Bliss builds world's largest knuckle-joint press for Regal Ware, Inc.

When Regal Ware, Inc., Kewaskum, Wis., needed a press to coin cups for artillery shell cases, one press builder recommended a 6000-ton hydraulic. Bliss, who builds both mechanical and hydraulic types, found that a 4000-ton knuckle-joint press would not only deliver higher production but would also cost much less.

Result: Bliss created the largest knuckle-joint press ever built, a giant standing 34 feet and weighing 305 tons.

Regal Ware's experience is a good example of how press buyers can count on Bliss' unbiased recommendations. For Bliss builds more types and sizes of mechanical and hydraulic presses than any other manufacturer. Call in your nearby Bliss sales engineer today.

Bliss on your press is more than a name ...it's a guarantee!

E. W. BLISS COMPANY, CANTON, OHIO
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PRESSES, ROLLING MILLS, SPECIAL MACHINERY

Branch offices in Chicago, Cleveland, Dayton, Detroit, Indianapolis, New Haven, New York, Philadelphia, Rochester, Toledo; and Toronto, Canada. West Coast Representatives: Moore Machinery Co., Los Angeles and San Francisco; Star Machinery Co., Seattle. Other dealers in United States cities and throughout the world.



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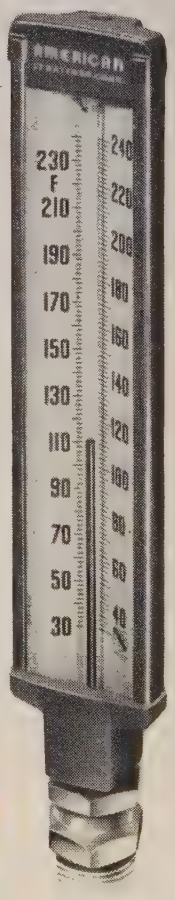
Bronze Extrusion makes a stronger case for this industrial glass thermometer

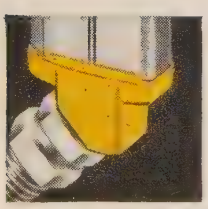
The case for this "American" Industrial Glass Thermometer made by Manning, Maxwell & Moore, Incorporated, Stratford, Conn., used to be a steel stamping. Now it's made of ANACONDA Extruded Bronze.

Why the change? Because this extruded bronze shape makes a far stronger and more rigid case; it's easier to produce; it simplifies assembly—and adds additional quality to an already high-quality product. So accurate are these bronze extrusions that neither straightening nor machining is needed for assembly. And assembly time itself is cut.

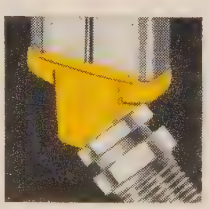
For the base, an ANACONDA Brass Die Pressed Forging is joined to the case by brazing to provide greater joint strength. By machining the appropriate face of a single-style base forging, a stem connection can be provided at any angle.

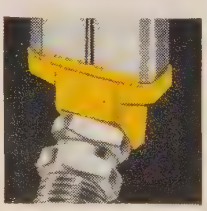
ANACONDA Brass and Bronze have long been making a stronger "case" for products—by simplifying production; by the higher quality that is always associated with products made of brass or bronze; by increasing sales appeal. We urge you to consider the advantages of these metals for your manufacturing processes and your products. For information, write to The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario. 5387

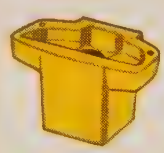












Base forging can be machined to provi stem connection at any angle and directi

Extruded case and forged base for this 9- "American" Thermometer are joined in p fect alignment by brazing. No machini or straightening is required.

ANACONDA® —the name to remember in **COPPER—BRASS—BRONZ**

CLEVELAND TRAMRAIL EXHIBIT SPACE No. 1325-A

5th NATIONAL MATERIALS HANDLING EXPOSITION
MAY 18-22, 1953 PHILADELPHIA

SEE THIS WORKING EXHIBIT OF OVERHEAD HANDLING EQUIPMENT

SEE Stabilized Crane with no-swing hoist.

Provides rigid load suspension with hoisting ropes. Enables complete stability — longitudinally, laterally and rotationally. A revolutionary development with tremendous production-speeding advantages.

SEE Motorized Crane

Compare its smooth acceleration and general operation with any other crane. Note its many quality features which assure trouble-free operation and long life.

SEE Hand-Propelled Crane

Be sure to run this crane yourself. See how easy it rolls with extremely little effort. You will learn why we can guarantee to not exceed a starting effort of 15 lbs. and running effort of 10 lbs. per ton weight.

SEE Saf-Powr-Bar

The greatest safety improvement for electrified overhead handling equipment. For new or existing Cleveland Tramrail systems. Employs a sliding collector shoe with a service life five times that of ordinary collector wheels.

SEE For yourself how Cleveland Tramrail works — how it compares in every respect. Determine if it will serve your job best with the least maintenance.

DO YOU WANT TO . . .

1. Reduce Handling Costs?

a. Reduce Handling Time
b. Reduce Materials Costs
c. Reduce Overhead Costs

2. Increase Capacity?

a. Increase Production
b. Increase Storage Capacity
c. Improve Layout

3. Improve Working Conditions?

a. Increase Safety
b. Reduce Fatigue

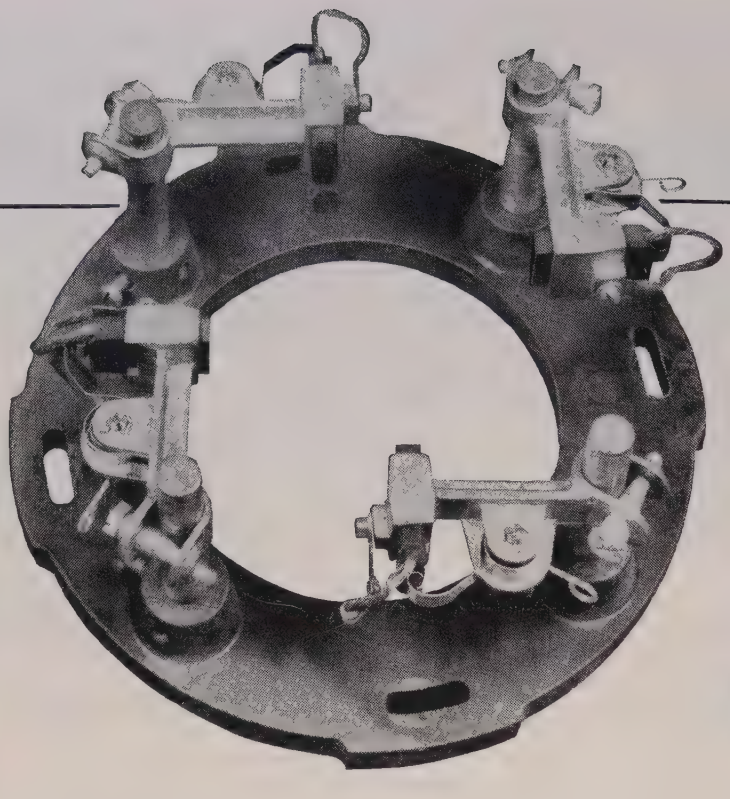
THEN BE SURE TO VISIT CLEVELAND TRAMRAIL'S EXHIBIT

If you visit no other exhibit at this great show, we feel that your possibilities for developing valuable ideas at Cleveland Tramrail's space alone might very well pay for your trip to Philadelphia by a hundred fold the first year that they are carried through.

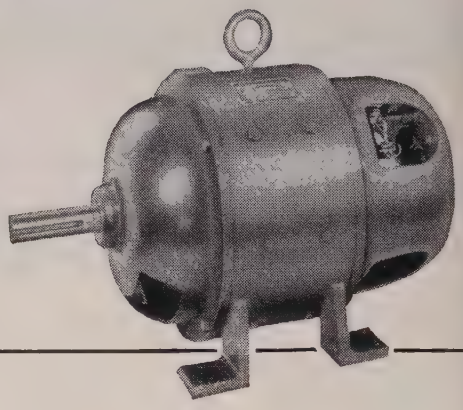
Cleveland Tramrail overhead materials handling equipment has proven to be a sound answer to the questions raised above in plants of every size, in every industry. More than 9,000 companies in the United States and throughout the world have profited with 40,000 installations engineered to best serve their needs. Very likely Cleveland Tramrail can be similarly helpful to you.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
7884 East 284th Street — Wickliffe, Ohio

CLEVELAND  **TRAMRAIL**



SK DEPENDABILITY



Arcs leave no tracks on this *MELAMINE* ring

When conducting dust collects across the surface of a rocker ring, it can cause a flashover. In the case of ordinary materials used for rings, this arc carbonizes a path into the ring itself. Thus, when the machine is cleaned to remove conductive particles, the path or track cannot be removed. High resistance grounds result. Motor efficiency is lost.

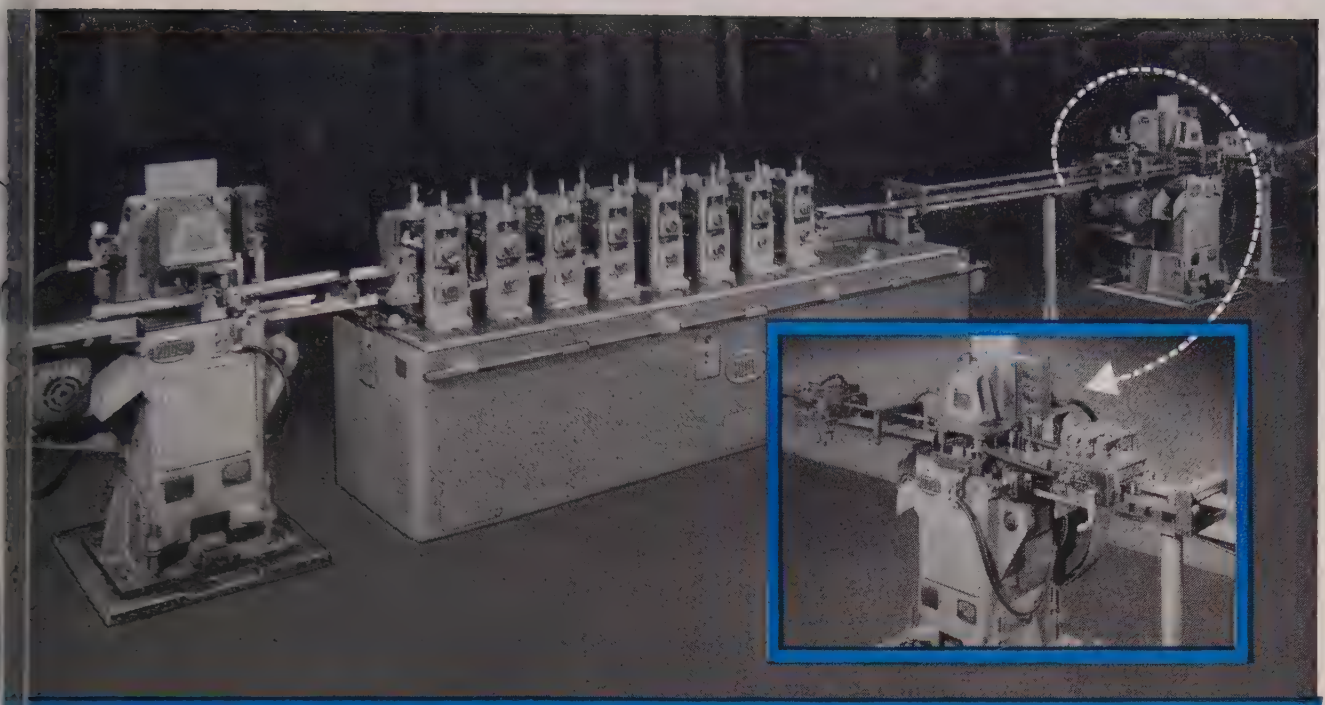
But, carbon flashovers don't have a chance on this Melamine ring. It's arc proof... noncarbonizing. There is no tracking effect ... no "burned-in" paths to cause shorts. Thus, when you wipe the ring clean, it is restored to full service condition. Top motor efficiency is maintained.

That is one reason why the Life-Line SK offers users of d-c motors new dependability. Cast brass brushholders are another. They are noncorroding ... have no bearings to wear or bind. No moving parts to get out of adjustment. A stainless steel spring maintains perfect brush contact through constant tension.

There are other reasons, too. Ask your Westinghouse representative to show you the inside story of the Life-Line SK motor. See the "Transvision" presentation. It takes the SK apart and puts it together again at your own desk. You'll see why something new has been added to SK dependability. Call your local representative today. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna. J-21555-A

YOU CAN BE SURE...IF IT'S

Westinghouse



COLD-ROLL-FORMING

Multi-Function Production Lines *engineered to fit your needs*

The continuous feeding of coiled strip into a Yoder Cold-Roll-Forming machine is the fastest, most accurate and economical method yet devised for converting flat rolled metal into a multitude of finished shapes.

For still greater economy other operations may be combined with cold forming, such as embossing, notching, punching, perforating and cutting-to-length, coiling etc., often without adding a single penny to the labor or handling cost.

Some of these operations can be done by means of special tooling in the roll forming machine itself, others by auxiliary units lined up with it. Shown above is a line consisting of: (1) a Yoder Automatic Press for notching or perforating the strip before it goes into the forming machine, (2) the forming machine, and (3) another Yoder Press for automatic cut-off. The finished pieces from this line are then ready for assembly into window louvres or jalousies.

The know-how of the Yoder engineering staff is at your service in designing such multi-function production lines to meet individual requirements. Tell us about your needs. Yoder Book on Cold-Roll-Forming and auxiliary operations sent on request.

THE YODER COMPANY • 5502 Walworth Ave., Cleveland 2, Ohio

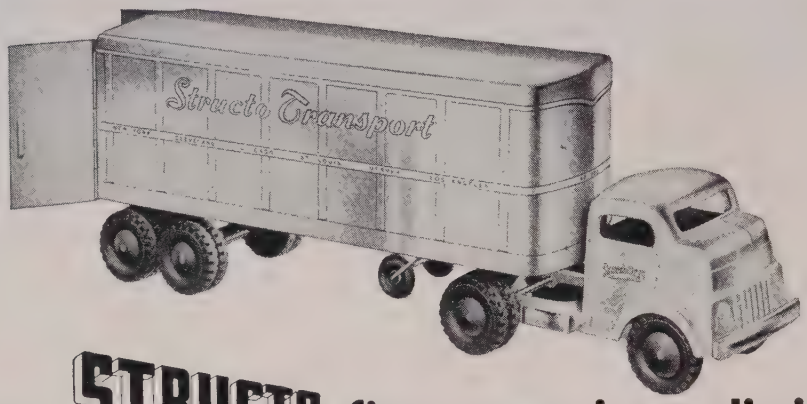
Complete Production Lines

- ★ COLD-ROLL-FORMING and auxiliary machinery
- ★ GANG SLITTING LINES for Coils and Sheets
- ★ PIPE and TUBE MILLS–cold forming and welding

ENGINEERING YODER MANUFACTURING

KUX

FIRST NAME IN DIE CASTING MACHINES

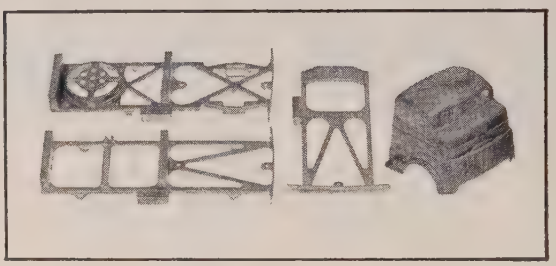


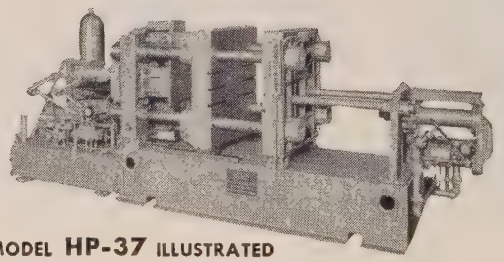
used by STRUCTO first name in realistic toys

UNGENTLE YOUNG HANDS put famous Structo trucks, trailers and steam-shovels through their "live-action" paces again and again. Toys have to be tough to take that. Structo *is* tough. Employing KUX die casting machines, Structo gets lightweight, structural castings of extra-ruggedness . . . to build toys that last a child-time of pleasure!

Is YOUR PRODUCT conditioned for the treatment it has to take? Quality die castings often make a tremendous difference in costs and saleability. KUX, first name in die casting machines, can make that difference for You!

Write for illustrated catalog showing complete line of KUX Die Casting Machines.





MODEL **HP-37** ILLUSTRATED

Hydraulically operated die casting machine for production of aluminum castings.

KUX MACHINE COMPANY • 6725 N. RIDGE • CHICAGO 26, ILLINOIS

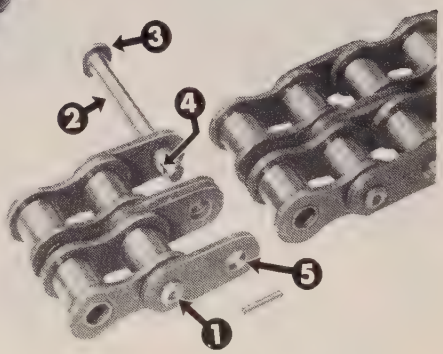
KUX

FIRST NAME IN DIE CASTING MACHINES
SELECTED BY FIRST NAMES IN INDUSTRY

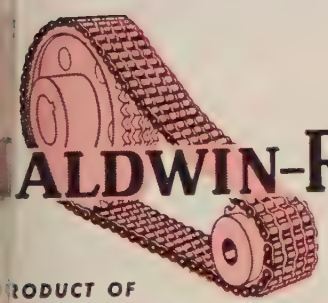


can you use this new Roller Chain?

Maybe you can find a use for Improved Baldwin ssembly Multiple Width Riveted Roller Chain... IF you want to save money . . . save costly down time . . . speed up chain assembly . . . simplify chain inventory and stocking! It's not particularly sensational . . . just the iest, most usable riveted roller chain yet! Here's all there is to it. It's just a ten foot strand riveted multiple width chain with exclusive lle Pin Couplers installed at convenient intervals n the strand, so that any length of chain may be made up, in a hurry, without cutting the chain damaging chain parts. It's just as easy to couple and uncouple as cottered chain. BUT the entire strand retains the added life of riveted chains. Your shop can install these chains in a hurry . . . save plenty by cutting "down time." Chain is ipped in boxes with a ten-foot assembled length in each box. Why not get the complete story. See your local Rex Distributor, or just mail the coupon.



HERE IT IS: One end of the single pin coupler link is firmly riveted to the adjacent link (1). The unique Coupler Pin (2) has a spun washer (3) on one end, the other has a milled flat (4) and locking pin. The pin is an easy fit through the chain except for the milled flat end which is press-fitted into a special matching hole (5) of the single pin coupler plate. You need only drive the pin the length of its milled flat in assembling or disassembling the chain. It's easy . . . saves time, effort and money.



ALDWIN-REX®
ROLLER CHAINS

RODUCT OF
hain Belt COMPANY
OF MILWAUKEE

53-405A

CHAIN BELT COMPANY
Baldwin-Duckworth Division
326 Plainfield Street
Springfield 2, Mass.

Gentlemen:
Please send my copy of Bulletin No. 52-2

Name.....

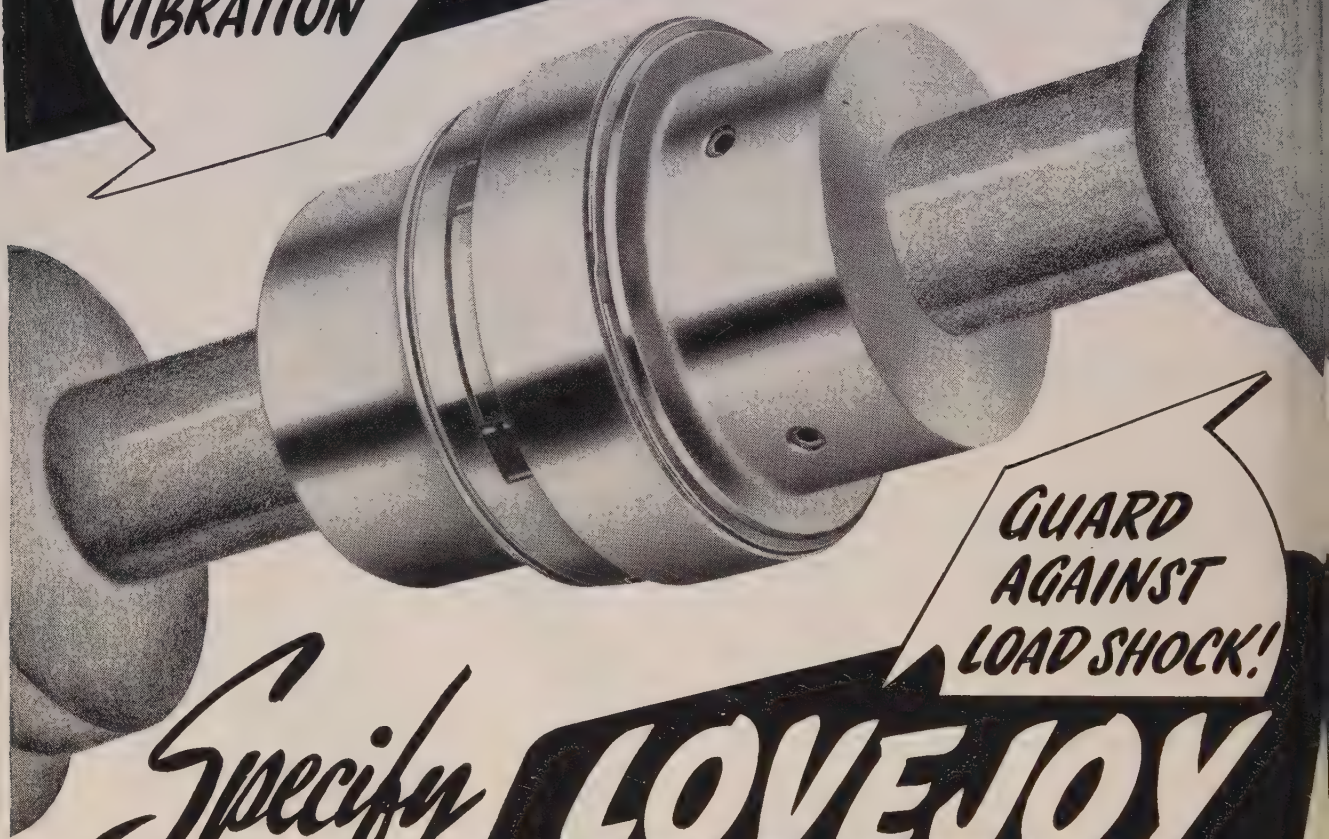
Firm.....

Address.....

City.....*Zone*.....*State*.....

Protect your machinery's LIFE-LINE!

ELIMINATE VIBRATION



GUARD AGAINST LOAD SHOCK!

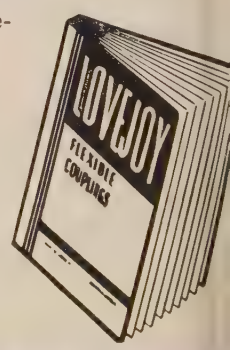
Specify LOVEJOY FLEXIBLE COUPLINGS

When you install Lovejoy Couplings, you guarantee your machinery the benefits of years of coupling design and engineering experience. You know that smooth, steady power transmission will keep your runout tables, conveyors, hoists, pumps and other production equipment operating at peak efficiency.

Note the compact, accurately machined bodies and jaws—the special cushioning materials—and you'll see why Lovejoy spells the end of your "down-time" worries . . . why misalignment, backlash, and surge are reduced to a bare minimum.

Lovejoy Couplings reduce maintenance time. Cushions are changed without shutdown. Lovejoy Couplings never require lubrication.

Write to us now for full technical data and engineering advice. Our illustrated catalog, with handy selector charts, is yours without obligation. Just forward your request.

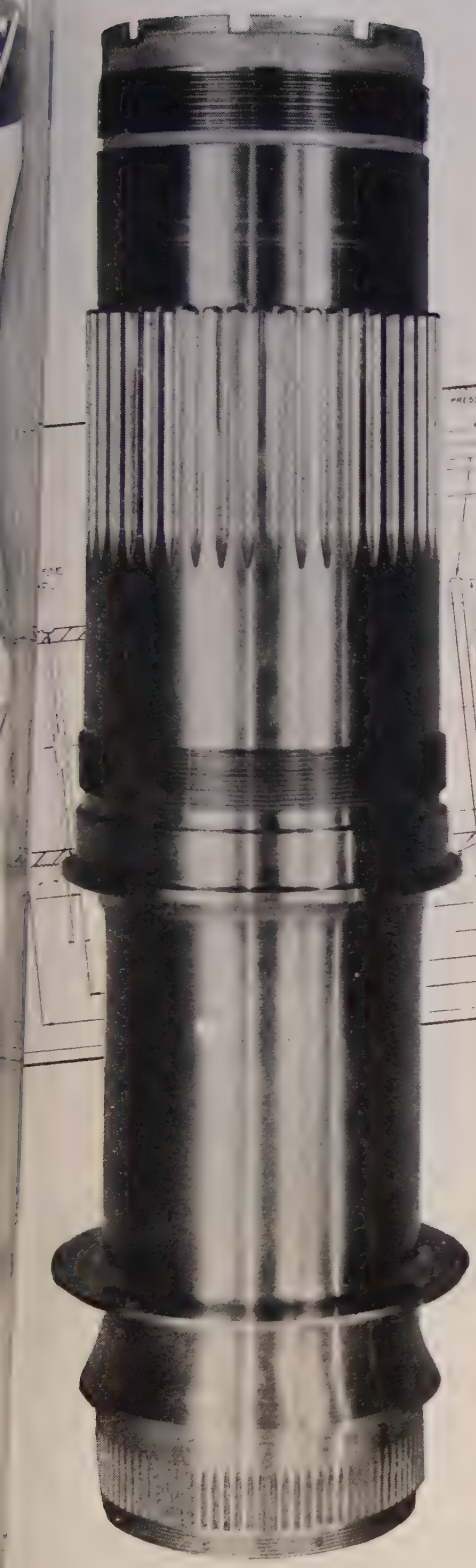


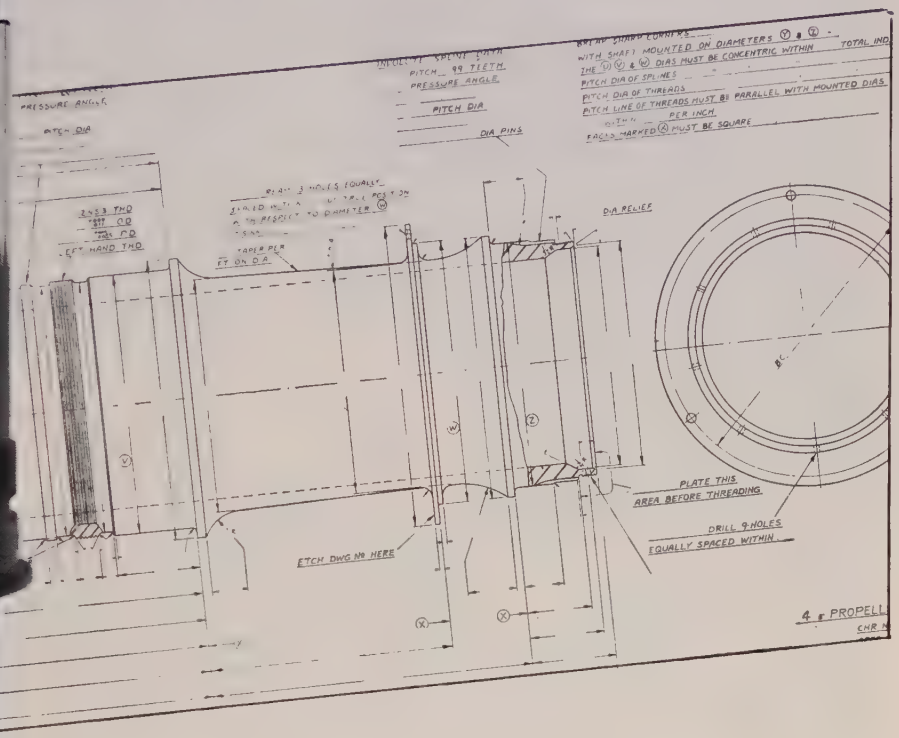
LOVEJOY FLEXIBLE COUPLING COMPANY

5071 WEST LAKE STREET CHICAGO 44, ILLINOIS

Manufacturers of Couplings, Universal Joints and Variable Speed Transmissions

Propeller Shaft Forgings Require Special Skills to Produce

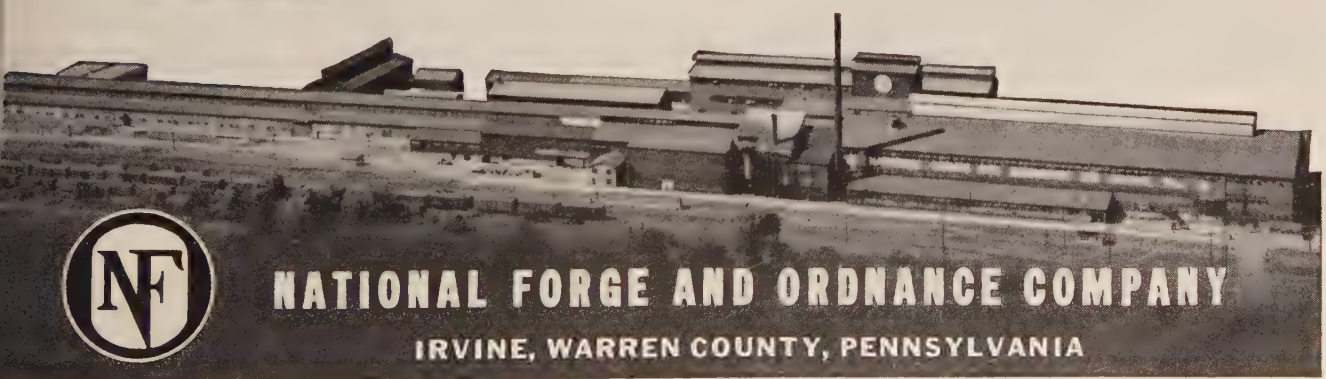




Skilled metallurgists produce special electric alloy steel for these forgings at National Forge. The steel must have high resistance to fatigue, wear and shock. After rough machining and carefully controlled heat treating, these forgings are precisely machined to close tolerances by skilled machinists. The finished shafts are ready for installation.

These special skills were developed at National Forge through years of close cooperation with the aircraft industry. This has given National Forge a complete understanding of the quality requirements both in material and machining.

Why not put this experience and skill to work for you when next you need forgings? Write for full information.



NATIONAL FORGE AND ORDNANCE COMPANY

IRVINE, WARREN COUNTY, PENNSYLVANIA



WISCONSIN STEEL COMPANY

AFFILIATE OF INTERNATIONAL HARVESTER COMPANY

INTERNATIONAL HARVESTER

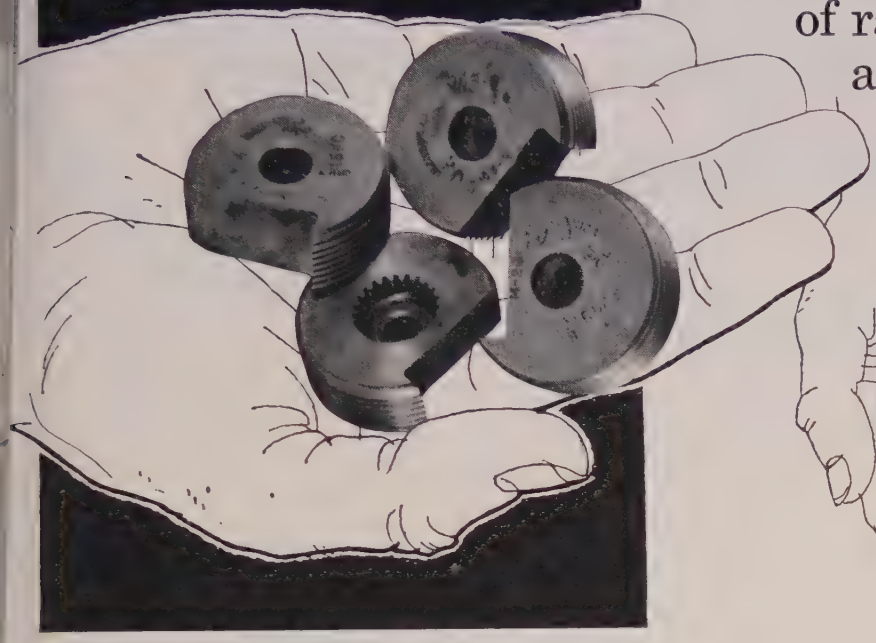
180 NORTH MICHIGAN AVENUE, CHICAGO 1, ILLINOIS

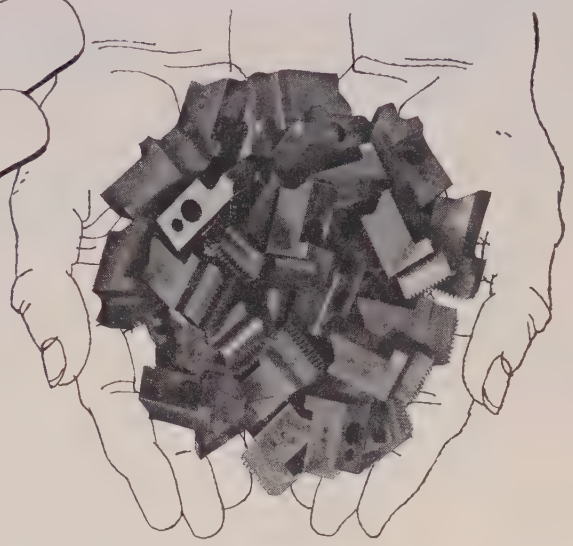
1 SET cuts more threads...

of ground thread circular chasers

than 10 SETS

of radial hobbed and lapped chasers





another reason why so many production shops standardize on

VERS-O-TOOL

with GROUND THREAD CIRCULAR CHASERS

With circular ground thread chasers, you grind 200 times and up—to a full 270° of their circumference; with radial type you average 4 grinds.

With circulars, you vary the grind with the right hook and clearance to suit any material; with radials your grind is fixed, usually limited to one material, one job.

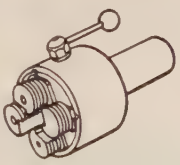
With the circular chaser Vers-o-tool System you use the patented Micrometer gauge—every regrind is identical, insuring precise uniformity of threads. You avoid adjustments, scrap loss and save time—reduce your chaser costs 10 to 1 or better, over radial chasers.

CHALLENGE TO OBSOLESCENCE

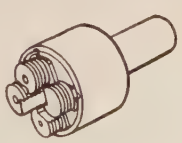
By the time you've used up two sets of circulars you will have saved enough to pay for the entire Vers-o-tool installation.

The difference in life and in performance between ground thread circular chasers and the old conventional type as proved in shop after shop enables us to make this guarantee.

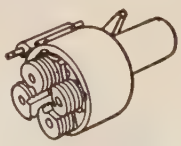
24-hour deliveries on most standard stockable NC and NF chasers and blocks—also National taper pipe and dry seal.



Style DS Vers-o-tool (Non-revolving Type) 10 Sizes, 3/8"—6 1/2".



Style DR Vers-o-tool (Revolving Type) 13 Sizes 3/16"—6 1/2"



Style DBS Vers-o-tool (for B&S Automatics) 3 Sizes, 1/4"—9/16".

Ground thread circular chasers and their holding blocks are interchangeable, die size for die size, among all styles of Vers-o-tool automatic heads.

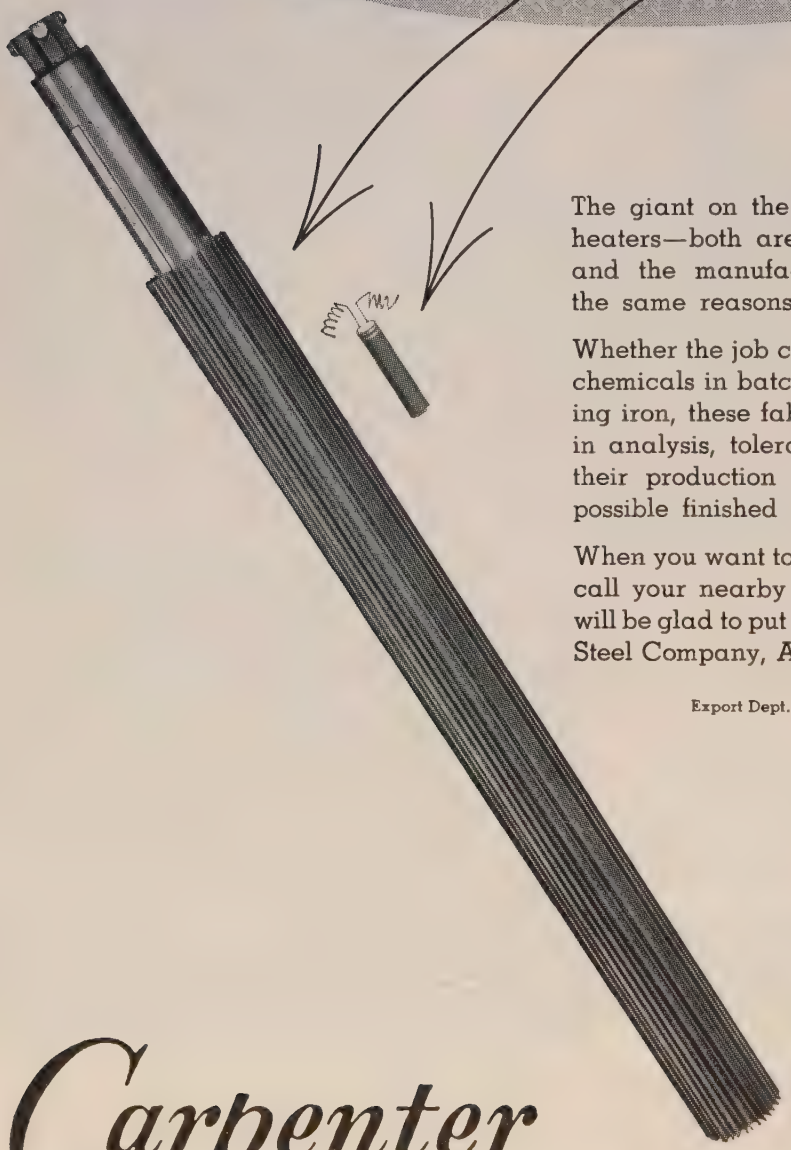
Ask for Catalog DT-52

The NATIONAL ACME CO.

170 East 131st St. • Cleveland 8, Ohio.

Acme-Gridley Bar and Chucking Automatics: 1-4-6 and 8 Spindle • Hydraulic Thread Rolling Machines • Automatic Threading Dies and Taps • Limit, Motor Starter and Control Station Switches • Solenoids • Contract Manufacturing

Whether the job is BIG or small uniform *Carpenter* tubing speeds fabrication



The giant on the left and the pygmy on the right are both heaters—both are made from Carpenter Stainless Tubing—and the manufacturers selected Carpenter for essentially the same reasons.

Whether the job calls for a large immersion heater for heating chemicals in batch tanks or a small heating unit for a soldering iron, these fabricators know that the consistent uniformity in analysis, tolerance and finish of Carpenter tubing makes their production move smoothly and gives them the finest possible finished product.

When you want to discuss your design or fabricating problems, call your nearby Carpenter Stainless Tubing Distributor. He will be glad to put his experience to work for you. The Carpenter Steel Company, Alloy Tube Division, Union, N. J.

Export Dept.: The Carpenter Steel Co., Port Washington, N.Y. "CARSTEELCO"

Carpenter

more than corrosion resistance

STAINLESS TUBING & PIPE

← Analysis → ← Tolerance → ← Finish →

- guaranteed on every shipmen

Wagon, Truck or Locomotive Crane work, you can't go wrong when your

BROWNING'S ON THE JOB!



WAGON CRANES
2 Models
17½ to 25 Tons
25 to 100 Ft. Booms

TRUCK CRANES
5 Models
8 to 30 Tons
25 to 120 Ft. Booms

LOCOMOTIVE CRANES
3 Models
25 to 50 Tons
50 to 135 Ft. Booms

...u can't beat BROWNINGS on these jobs



...VY MATERIALS HANDLING



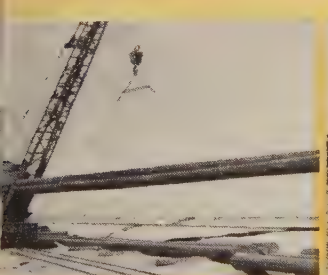
CAR LOADING AND SWITCHING



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RAILROAD MAINTENANCE



SAND AND GRAVEL LOADING

Browning builds the only complete line of cranes for all heavy-materials handling

TRUCK CRANES with independent control of each function *separately or simultaneously* on all models. High-speed maneuverability in worst conditions. Short wheelbase for operation in close quarters.

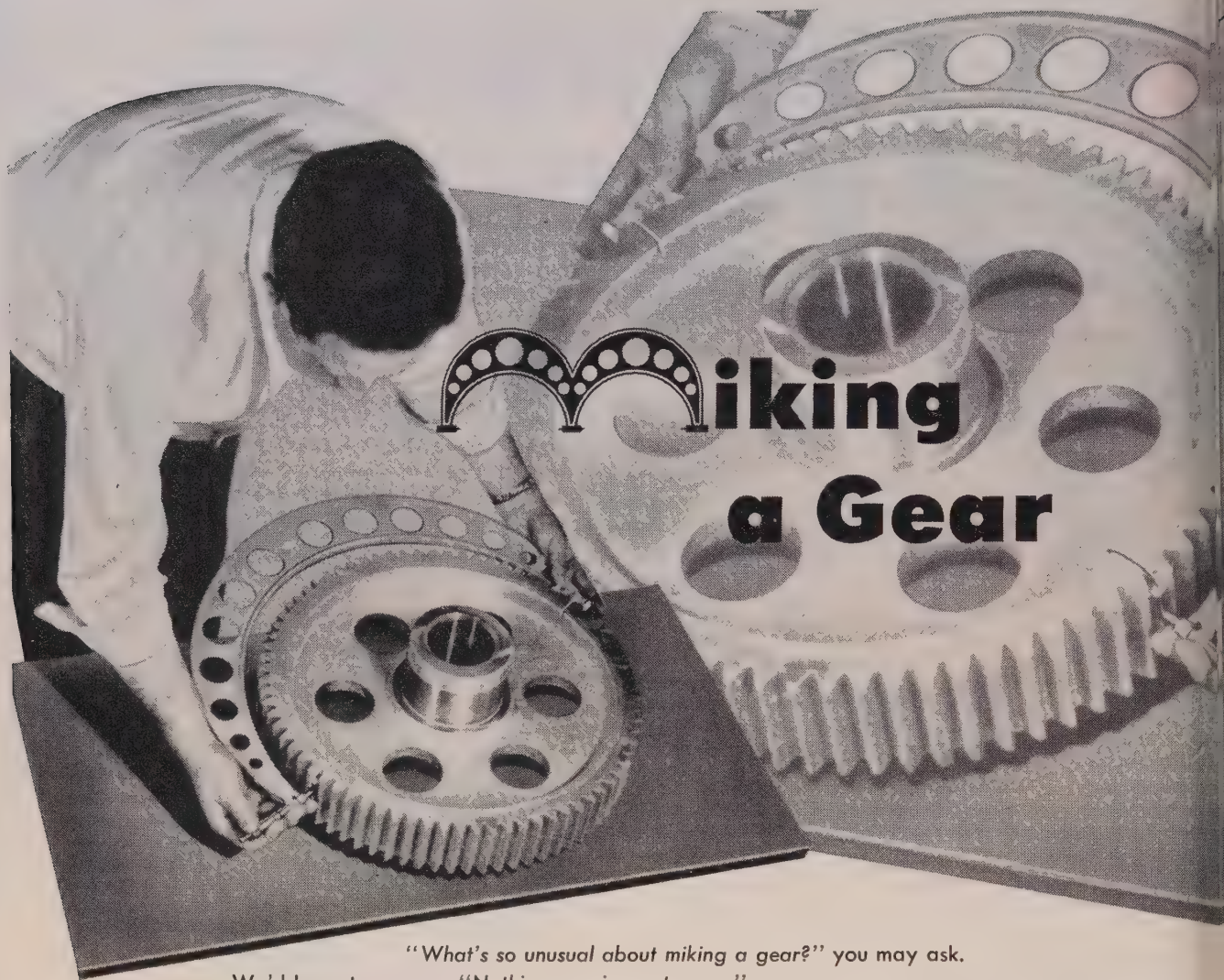
SELF-PROPELLED WAGON CRANES, originated by Browning. Rubber-mounted, one man operation, with the power, smoothness and versatility to operate efficiently and economically on a wide variety of crane work.

DIESEL AND TORQFLO LOCOMOTIVE CRANES with unequaled power for switching. Fast, easy controls for maximum productive operation. Rugged design and construction for year-in, year-out dependability.

BROWNING can recommend, and deliver the *right* crane model for your job. Our fifty-four years' experience as crane specialists is yours for the asking. Write us for complete information.

THE BROWNING CRANE & SHOVEL CO.
Dept. J, 16226 Waterloo Road, Cleveland 10, Ohio

BROWNING
LOCOMOTIVE, WAGON TRUCK AND CRAWLER *Cranes*



Miking a Gear

"What's so unusual about miking a gear?" you may ask.
We'd have to answer, *"Nothing . . . in most cases."*

• But when we talk about miking the pitch diameter over wires, of a big case hardened spur gear which must have a Rockwell hardness of 60, and be held to a very close tolerance, we get down to the finer art of gear making.

• BRAD FOOTE has made tens of thousands of the gear illustrated above, on a long contract run. They are subject to rigid customer inspections, and the percentage of acceptance is exceptionally high. Because of few rejections, production costs are lower. So are the costs to the customer.

• Making gears today is no ordinary job. It's a highly specialized business with new techniques that far outdistance methods used only yesterday. Many of these techniques leave no mark visible to the eye when the gear is first examined. But as the service life increases, the value of modern methods becomes apparent.

• Here at BRAD FOOTE we employ every new technique and modern method that has been proved to increase the life of the widely diversified gears, gearmotors, reducers, and transmissions which we design and manufacture. That's why you can order from us with confidence that our products will serve well in your shop or plants, or on the equipment you make for others.

• Avail yourself of the complete facilities and services offered only by BRAD FOOTE. Send your specifications for quotations, or tell us about the job and let us design what you need.



BRAD FOOTE GEAR WORKS, INC.

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Bishop 2-1070 • OLympic 2-7700

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Phone: Lemont 920
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Pressure Processing

. . . whoever uses it in their production is a customer or potential customer of **H-P-M**



Rugged Construction of CATERPILLAR Equipment Calls for Versatile, Dependable H-P-Ms!

Production men at Caterpillar Tractor Company find versatile H-P-M All-Hydraulic presses perform a wide variety of jobs in building Caterpillar's extensive line of tractors, engines, motor graders and rugged earth-moving equipment. There are 6 H-P-Ms in this diversified production line, ranging in size from 500 to 3500 tons . . . and, one press may work on as many as 15 or 20 different parts.

If pressure processing plays a part in your production, it will pay you well to talk shop with an H-P-M engineer. Write today!

HPM THE HYDRAULIC PRESS MFG. CO.

1044 Marion Road, Mount Gilead, Ohio, U. S. A.

Presses for Every Pressure Processing Application

Call GERRARD

for the tie that fits the job!

• Gerrard's Round Steel Strapping is made in a range of sizes from 8 to 18½ gauge. It is widely used for reinforcing all types of bundles from parcel post packages to palletized machine parts and carload lots of steel pipe, plates and machinery.

Hand-operated machines as well as the semi-automatic Q Model apply Gerrard's unique "twist knot" which eliminates both the cost and the time of using a separate seal for each tie. All bundles and loads are held securely from plant to destination.

Because it is round, Gerrard Steel Strapping conforms to odd-shaped contours, and holds unpackaged items with the same firm grip that is applied to cartons and crates.

And Gerrard Round Strapping costs about 40% less than any other metal reinforcement.



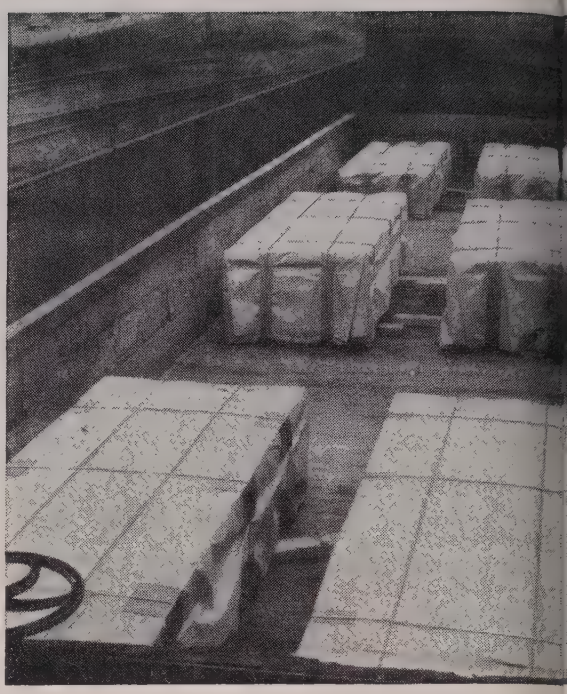
A DIAGONAL TIE, for reinforcement of all six sides of a carton, can be applied quickly with Gerrard Round Strapping and semi-automatic Model Q machine.



CANS ROLL FROM A CONVEYOR into a form and are quickly and safely secured for shipment with a single Gerrard Steel Strap.



A STANDARD PALLET saves money, yet can be used for a variety of shapes and sizes. Gerrard Round Strapping holds these pallets securely.
(Photo courtesy of International Harvester Co., Industrial Power Division.)

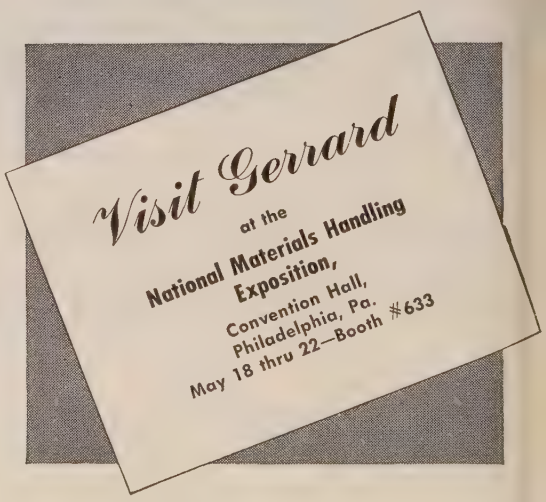


STEEL PLATE, wrapped for export shipment, is kept firm and safe with Gerrard Steel Straps.

SEND FOR FREE LITERATURE

Blue Book of Packaging will be sent to you free on request. If you desire, a Gerrard engineer will survey your packaging and tying procedures, and will make whatever recommendations will improve your operations. His advice is available free of charge.

* * *



GERRARD STEEL STRAPPING DIVISION, UNITED STATES STEEL CORPORATION
4745 South Richmond St., Chicago 32, Ill.

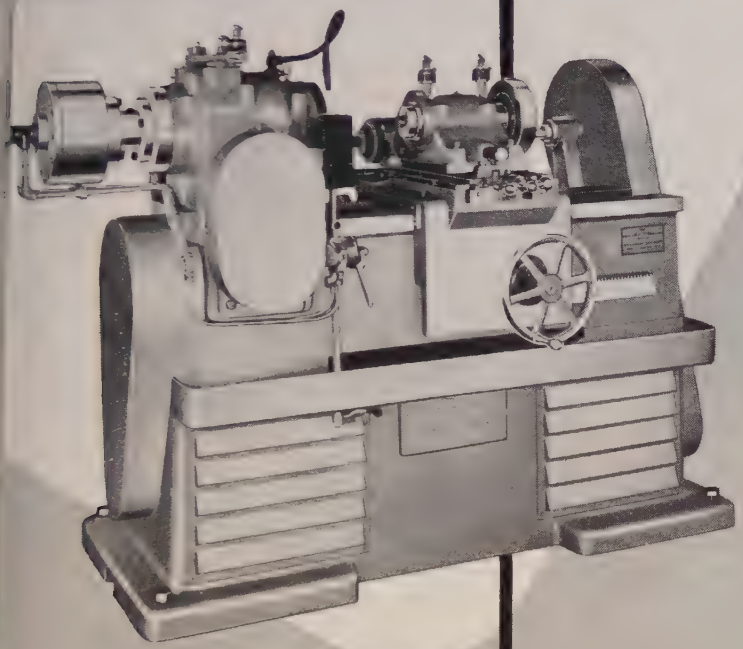
USS TRADE MARK

GERRARD STEEL STRAPPING

UNITED STATES STEEL

the only solution to high thread production costs . . . install a fully automatic

Model "H1" — for precision, internal, external, right and left hand threads.



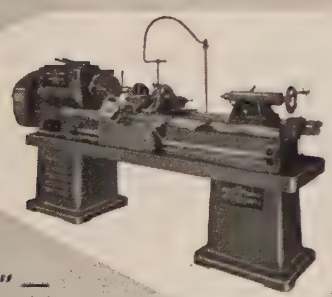
COULTER THREADING MACHINE

COULTER has been building production machines since 1896. Every new development for *faster, more accurate* threading created by engineers with immense experience, background and know-how is incorporated on all COULTER Threading Machines. That is why COULTER is the most respected name in machinery the world over. If you are confronted with a thread production problem, please write or phone . . . COULTER engineers will help you. Catalogs and specifications of machines are available at no cost.

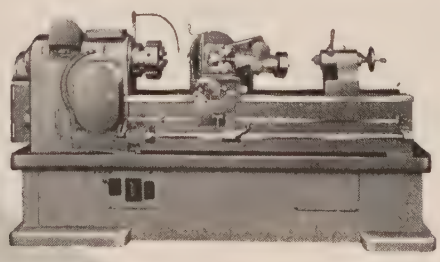
Remember . . . a COULTER does it better . . . faster AUTOMATICALLY

The *James Coulter Machine Co.*

631 Railroad Ave. Bridgeport 5, Conn.



Model "L1" — For long, precision, square, standard and 29 degree threads. Internal or external.

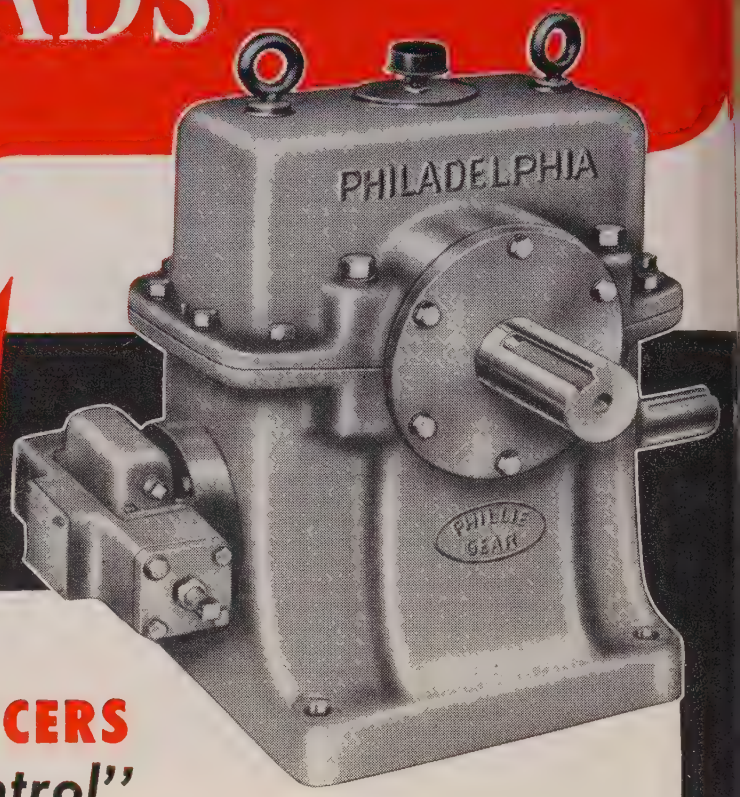


"THREADMASTER" — For precision, long and short traversing, elevating, cross feed and lead screws.

THE DRIVE THAT

GUARDS AGAINST OVERLOADS

ELIMINATES...
Shear-Pins
...Electrical
Overload
Relays



Philadelphia WORM GEAR REDUCERS *with* "Torque Control"

Here is a worm gear drive which safely and surely protects against overload damage to conveyor assemblies and other industrial machinery yet operates without the use of shear pins or electrical overload relays. The *Torque Control* unit may be set for almost any predetermined torque—when this loading is exceeded the driving motor is instantaneously stopped, thus protecting the entire train of equipment.

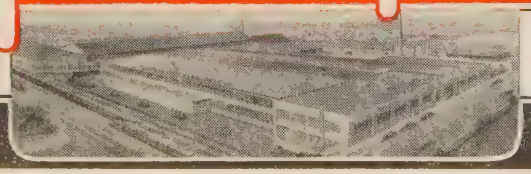
To restart, only removal of the cause of overload is required. No resetting or replacement of parts is necessary.

The *Torque Control* unit was initially developed for the conveyor industry—its highly successful use in this field has led to its application on a wide range of industrial machinery where instant protection against overload or jamming is necessary.

Torque Control may be incorporated on any of the standard line of Philadelphia Worm Gear Speed Reducers in horsepower ratings up to 260 HP and ratios to 6300:1.

Torque Control is another example of advanced power transmission engineering by Philadelphia. Write us for full details.

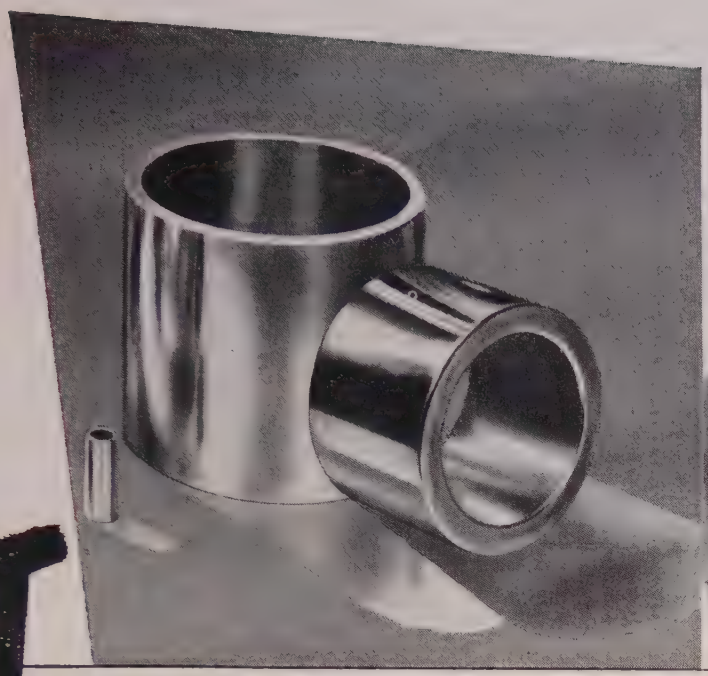
Philadelphia Gear Works, INC.

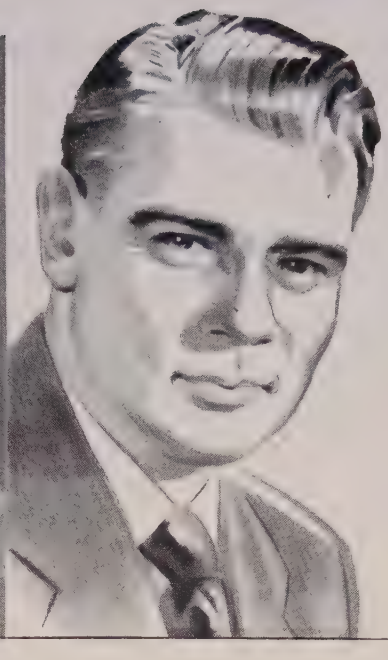


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Industrial Gears and Speed Reducers
LimiTorque Valve Controls





They ARE LOCALLY AVAILABLE!

Bunting Standard Stock Bearings

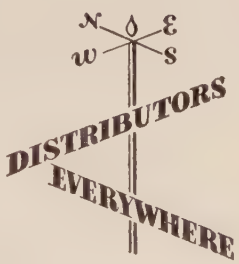


The bronze bearings you need are as readily available as the Bunting catalog in your desk drawer. It gives all dimensions of hundreds of sizes of Bunting Standard Stock Bronze Bearings. Completely machined and finished, they meet every familiar requirement in production and maintenance of industrial machinery. Your local Bunting distributor carries comprehensive stocks at all times. Bunting factory branches in all industrial centers give strong and constant support to distributors.

The Bunting Distributor



Your Bunting Distributor is an industrial distributor or a specialist in certain industrial items. You will find him listed in the classified section of your telephone book—most likely under the heading Bars, bronze or Bearings, bronze. If he is the leading distributor, he almost certainly is the Bunting Distributor. He carries in stock, for your money saving convenience, completely machined and finished Bunting Standard Stock Industrial Bearings, Electric Motor Bearings and Precision Bronze Bars in a complete range of sizes meeting all your usual production and maintenance needs. Ask him for catalog.



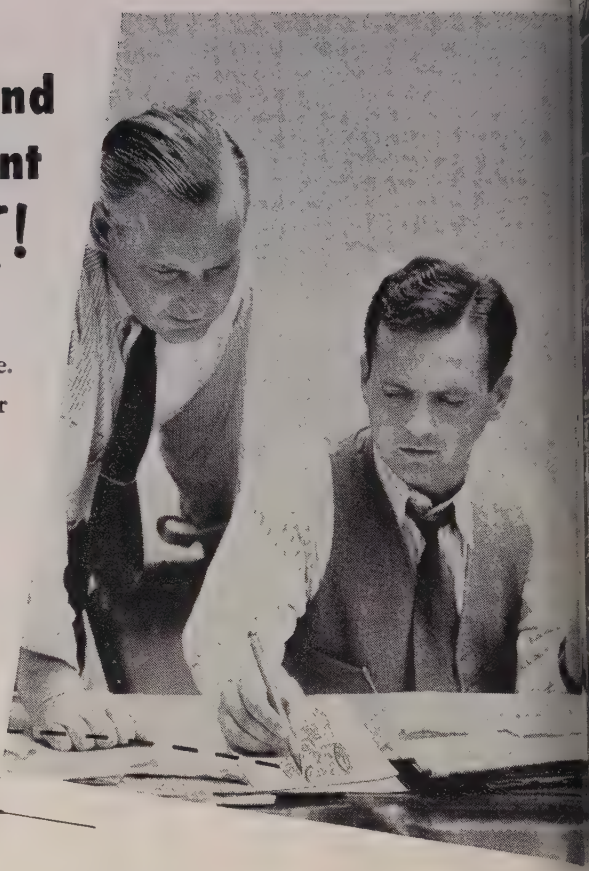
Bunting®

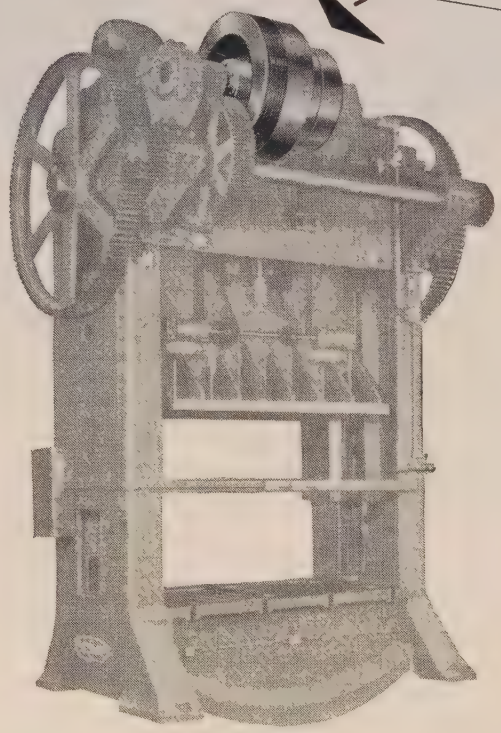
BRONZE BEARINGS • BUSHINGS • PRECISION BRONZE BARS

HE BUNTING BRASS & BRONZE COMPANY • TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES

Sure a CLEVELAND's design and construction features are excellent ...and here's what's BACK OF IT!

"Look at this Cleveland Drum Type Friction Clutch and Brake. It's the nerve center that controls every press operation. Our operators have found that this new Cleveland Clutch gives them positive control instantly at any point of the stroke. It's safe, too—if current fails, the positive, spring-loaded Brake brings the slide to an immediate stop.





remember

the press production delays we used to have due to clutch failure? Well, this Cleveland Clutch has stopped all that. The boys say it's easy to adjust and service without removal from the press. Maintenance expenses have dropped way down.

Operating costs are down, too. The lightweight design of the unit requires less horsepower for operation yet gives us quicker starts and stops. It's so efficient I'd like to put new Cleveland Clutches on our older presses."

Are you familiar with the many advantages of the Cleveland (patented) Drum Type Clutch and Brake? If not, it will be to your advantage to write today for full details. A-7211

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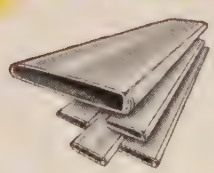
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Think of H & H First

for Brass and Copper Tubing that will LAST...

THE SAME H & H LOCKSEAM TUBING that cools your car's engine, also cools many types of truck, tractor and stationary engines which provide the power for heavy construction work. Often subjected to years of gruelling use under extreme climatic conditions, these engines offer additional proof that H & H brass and copper tubing and fabricated parts are used *wherever* quality and long life count. No matter what you manufacture, if your operation calls for tubing that will *last*, call your nearby H & H representative *first*.



LOCKSEAM TUBING*

Available in round or oval shapes, in a wide range of metals. Precision cut to random or specified lengths in sizes to meet requirements of heating and cooling field. Solder coated on outside or both sides.

*Blueprint of size ranges and standard tubes furnished upon request.

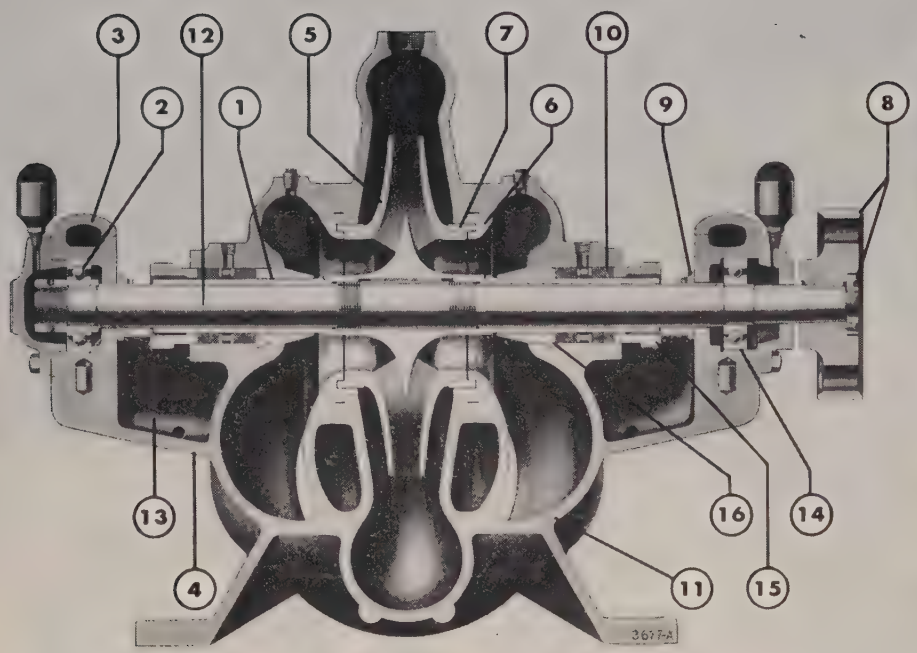
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Originators and sole makers of "Metalflo" — the economy tubing



METALFLO LOCKSEAM COIL STRIP AND SEAMLESS TUBING TUBULAR PARTS

DE LAVAL
SINGLE STAGE CENTRIFUGAL PUMPS

for dependable industrial service



Labyrinth wearing rings minimize leakage...maintain high efficiencies



Labyrinth rings used in these De Laval pumps retard flow of water through labyrinth passage.



Flat rings showing relatively unimpeded flow of water.

(1) **Shaft Sleeves** are screwed on, to abut the impeller and make a water-tight joint. Sleeve expands freely and independently of shaft when temperatures change. There is no tendency to buckle.

(2) **Thrust Bearing** locates rotor axially.

(3) **Bearing Caps** easily removable for maintenance.

(4) **Bearing Brackets** scraped to lining bars for perfect alignment.

(5) **Impeller** hydraulically balanced, finished on all surfaces.

(6) **Labyrinth Wearing Rings** held accurately in machined grooves in both case and cover.

(7) **Impeller Wearing Rings** threaded on impeller, opposite to rotation.

(8) **Flexible Coupling** ground on all exposed surfaces and statically balanced, complete coupling supplied, pump half mounted on taper so that it can be easily removed. Check nut locks coupling on taper.

(9) **Deflector** keeps water out of bearing.

(10) **Stuffing Boxes** extra deep; lantern rings for water sealing.

(11) **Pump Case** horizontally split; machined to limit gages.

(12) **Steel Shaft** ground to limit gages.

(13) **Drip Boxes** large; provided with drain openings.

(14) **Radial Bearing** free to move axially, thus avoiding temperature strains.

(15) **Glands** split horizontally.

(16) **Protecting Bushings** renewable.

You can count on the performance of the De Laval Single Stage Centrifugal Pumps because they are precision-made to high manufacturing standards and incorporate the many quality design features shown in the cross-section.

They operate at high or low speeds, at high or low heads...with maximum efficiency.

For example, De Laval G, I and K Single Stage Double Suction Pumps have a capacity range of 175 gpm to 6,000 gpm, and heads to 300 feet. They are available in sizes ranging from 4" suction and 3" discharge to 14" suction and 12" discharge. Write for Bulletin 1002.

DeLaval also furnishes larger centrifugals for capacities up to 70,000 gpm. Bulletin 83-29R sent on request.

DE LAVAL *Centrifugal Pumps*

DE LAVAL STEAM TURBINE COMPANY

860 Nottingham Way, Trenton 2, New Jersey

DL 198

DETREX PHOSPHATE COATINGS

Your Paint Finish is on to stay!



. . . with Detrex PaintBond

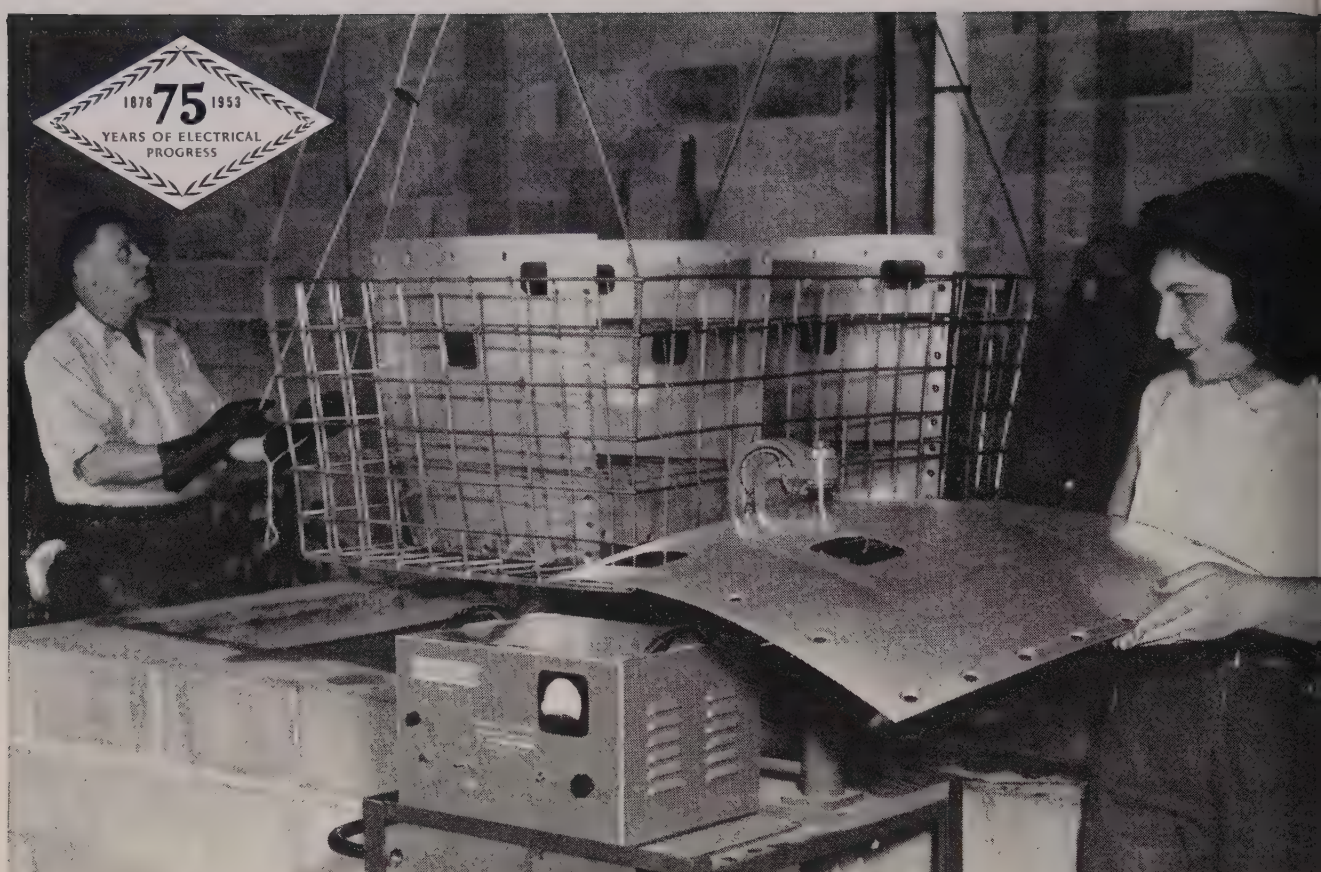
trex PaintBond effectively retards corro-n and serves as an excellent base for int finishes on metal surfaces. Easily and ickly applied by spray or immersion ans, it will add years of life to your oduct's finish.

Detrex PaintBond is a zinc phosphate ating which chemically interlocks itself on e metal's surface. Thus the metal surface sealed off from moisture and other causes corrosion. Since this coating provides a e-grained crystalline surface, it also rves as an ideal base for paint and locks securely to the metal. If the paint finish scratched, PaintBond retards corrosion . . . d even when the scratch penetrates the ating, any corrosion that takes place is nfined to the scratched area only.

As manufacturers of PaintBond, metal cleaners, degreasing solvents, and the equipment, Detrex can supply the entire process required to meet government or individual specifications. Only Detrex provides this "start-through-finish" service. For more complete information, contact our local field offices, or write direct to **Detrex Corporation, Box 501, Detroit 32, Michigan.** P-1

DETREX CORPORATION

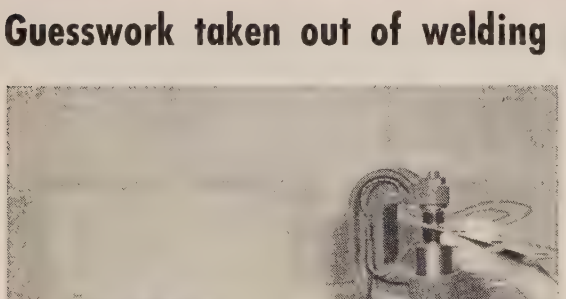
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PHOSPHATE COATING PROCESSES



EASY OPERATION OF INDICATOR PERMITS PARTS FOR 12-HOUR PRODUCTION TO BE CHECKED IN 15 MINUTES

Fast testing for better aluminum weld

Guesswork taken out of welding preparation by G-E Surface Resistance Indicat



ON PRODUCTION TESTING, operation requires no technical knowledge and is completed in seconds.

Spotweld Co., of Cleveland, Ohio uses a General Electric Su face Resistance Indicator in the preparation of aluminum pa for welding. Fabricating parts for aircraft, refrigerator uni tie rails, and vending machines, the company carefully chec surfaces to be welded after degreasing and deoxidization.

"Our G-E indicator has taken the guesswork out of prepar tion of aluminum for good welding," the company repor In addition, all parts to be welded can be checked in fifte minutes for a twelve-hour production period.

Surface resistance of aluminum is important in condition the weld nugget. If cleaning and deoxidizing solutions becor contaminated, metal is not thoroughly prepared—and go welds cannot be obtained. Large changes in resistance will sult from relatively small changes in concentration or co tamination of solutions.

Electrode pickup, inconsistency of welds and metal expulsi can be greatly reduced by use of the indicator. Further inf mation can be obtained from your nearest G-E Apparat Sales Office, or write for Bulletin GEA-5823 to General Elect Co., Section 687-121, Schenectady 5, N. Y.

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GENERAL ELECTRIC



Users tell the quality story

Lehigh Foundries and Pittsburgh Seamless Team-up to Produce Deadly Accurate 4.2 Mortar Shells

Machine operator Harold Allen, a team member at Lehigh Foundries, Inc., Easton, Pa., loads a cut length of Pittsburgh Seamless shell grade steel tubing into a 150-ton Elmes Press which forms the ogive (nose).

It takes a combination of special analysis steel made by veteran steelmakers at Pittsburgh Steel Company and a team of highly skilled metal fabricators like the Lehigh Foundries to mass produce mortar shells of absolute accuracy, quickly and efficiently.

The team at Pittsburgh Steel tap heat after heat of prescription made steel, roll it on high-speed automatic hot mills, treat it, draw it into seamless tubes each one exactly like the other.

Expert machine operators at Lehigh Foundries take those high-quality steel tubes, cut them into shell lengths, size them, cold nose them, assemble noses and base plates, machine them to hairline tolerances.

After passing through many skilled hands and many precision machines in the Lehigh plant, inspected and reinspected under the watchful supervision of U. S. Army Ordnance, the precision-made shells will arrive when needed somewhere on the Korean front to be fired into a Red dugout or position.

Whether your problem is production of ammo for Uncle Sam, track pin bushings, hydraulic equipment, aircraft landing gear, oil burners, tubular turnbuckles, or X-ray apparatus, why not talk it over with a Pittsburgh Steel man? He might have a suggestion that can save you time and money and make better products. Write Department S, Grant Building, Pittsburgh 30, Pa., for complete information regarding Pittsburgh Seamless Cold Drawn Tubing.

Pittsburgh Seamless Cold Drawn Tubing

a product of **Pittsburgh Steel Company**

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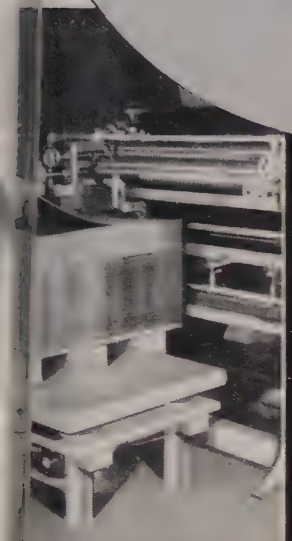
UP

PORTELVATOR®

(The Handy Hamilton Portable Elevating Table)

DOWN

FETCH . . . . .

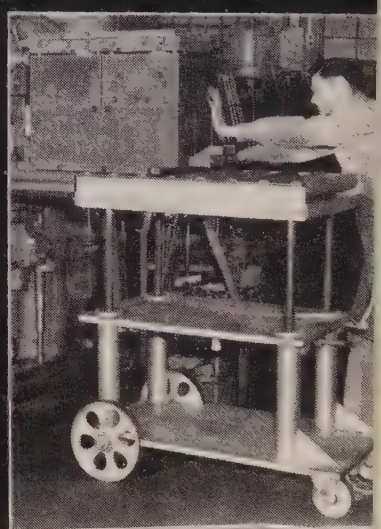


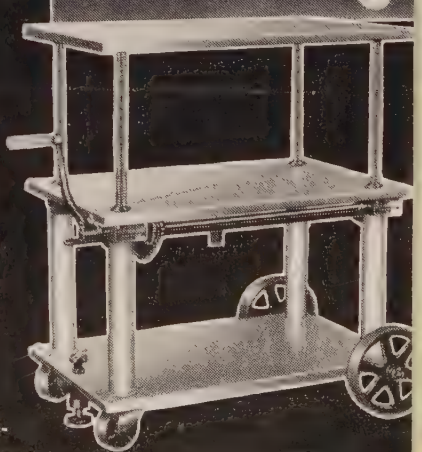




In hundreds of spots throughout your operation you are required to lift or lower, take or fetch. Tools and dies must move from storage to machine—from machine to storage. Materials must be positioned. Machines must be fed.

Consider this fact! You can accomplish many industrial movements better and cheaper with Portelvator, the handy Hamilton portable elevating table, than with any other means or device regardless of cost. Take another look at your operation, then take a look at the exclusive mechanical lift principle which is employed in all Portelvator applications. Write for free bulletin P-5309.





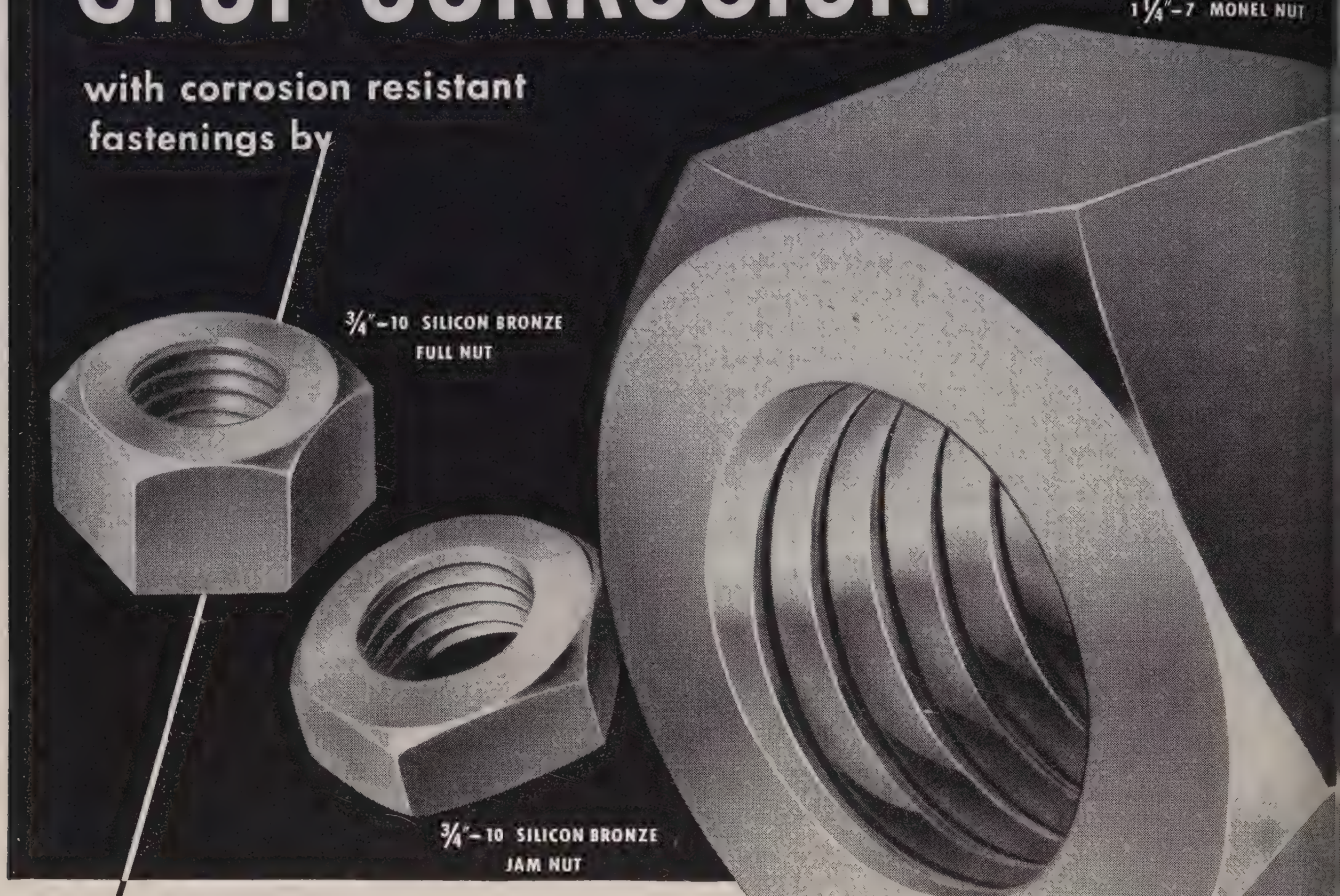
Portelvator® employs an exclusive mechanical lift principle based upon power transmission through meshing worm, worm gear, and screw. Load capacities to 20 tons. Stationary or portable. Power operated or manual. Push button controlled or completely automatic. Vertical movement to 10 ft. Table sizes to suit requirements. Tilt tops. Flat tops. Roller tops. — Take another look at your operation . . . and at Portelvator. Write now!

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with corrosion resistant fastenings by



HARPER

The cancer of corrosion is constantly at work, eating away the life of the equipment you manufacture. The H. M. Harper Company specializes in "Everlasting Fastenings" to combat corrosion. Bolts — nuts — screws — rivets — studs — washers of brass—naval bronze—silicon bronze—Monel—nickel—copper—aluminum—stainless steel—and the newer high temperature alloys.

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NOW M&T's hermetically sealed tin cans give you permanently all the advantages of MUREX Stainless Steel Electrodes. Moisture pick-up is eliminated — electrodes can be stored indefinitely without deterioration — shipping and handling damage, too, is prevented by packaging in six-container, specifically reinforced, double-cartons. *Inner* carton protects each container separately — *outer* carton furnishes extra overall protection. Get the quality MUREX Stainless Rods — in packages engineered to keep them that way! Remember, no matter what composition of stainless you are welding — M&T's extensive MUREX line provides the particular electrode to give best results. Rods are available in the different coatings — lime, titania, AC-DC — to suit the welding condition.

★ **STOPS MOISTURE PICK-UP**
★ **PERMITS INDEFINITE STORAGE**
★ **PREVENTS SHIPPING DAMAGE**



Smaller diameter rods furnished in 5-lb cans. Larger diameter in 10-lb cans.

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STAINLESS STEEL ELECTRODES



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Make Galland-Henning your Headquarters for Competent Scrap Baling Counsel.

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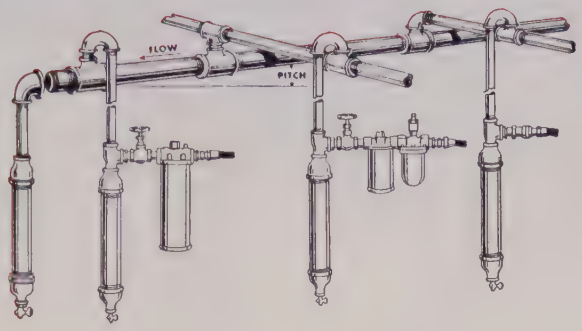


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HANSEN REPRESENTATIVES
Quick-Connective Couplings
Are Their Business
T SO ARE FLUID LINE PROBLEMS

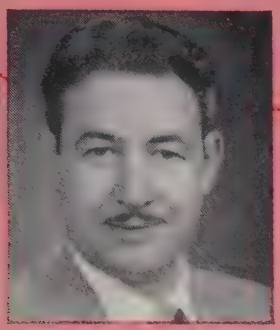
To Avoid Air Line Troubles



...use the on-the-job know-how of the HANSEN Representative

By the very nature of his job, the Hansen representative is thoroughly familiar with practically every type of air line hook-up. He knows what works—and why it does. Frequently, the remedy for your difficulties, drawn from his experience in dozens of plants, is very simple.

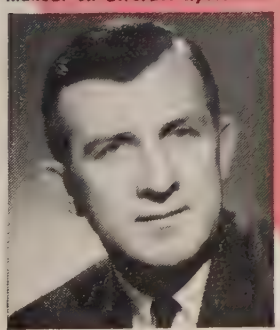
When you need help over the rough spots—either when actual troubles arise, or when air line circuits are being planned or altered—give him a call. Believe us, you'll welcome the help that he can give you.



GEORGE W. WARDEN
Geo. W. Warden Co., Seattle
Maintains close contact with fluid line installations in plants throughout Pacific Northwest.



EDWARD BURKE
The Burke Co., San Francisco
Offers years of practical experience in handling of vacuums, compressed air, gasses and liquids. Author of engineering manual on aircraft hydraulics.

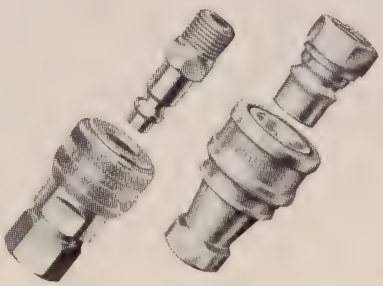


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USE ELECTROMET'S *PALLETIZED* SILICON BRIQUETS

A new briquet designed especially for shipment on pallets has been developed by ELECTROMET. The briquet is shaped like a brick so that it can be stacked on pallets for more convenient and economical handling. These pallet shipments, which are available at no extra charge over bulk shipments, can easily be unloaded and handled in your plant by lift truck or overhead crane. Handling costs are reduced and inventory-taking is simplified. The pallets are expendable and need not be returned.

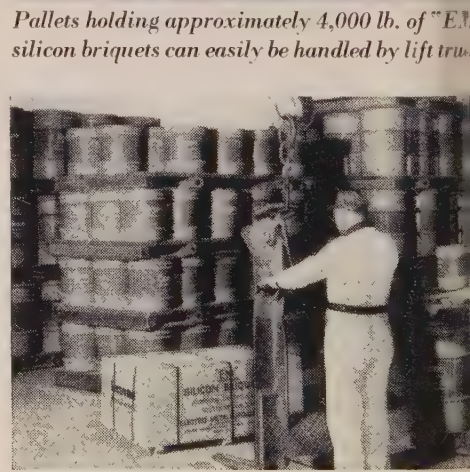
"EM" palletized silicon briquets are about 6 in. x 3 in. x 2 in. in size, weigh 5 lb. gross, and contain exactly 2 lb. of silicon. The briquets are notched, so that they can easily be split in half when 1 lb. additions of silicon are desired. Because they contain an exact amount of silicon, these briquets offer close control of analysis in cupola melting operations.

Silicon is a deoxidizer, cleanser, and softener of gray iron. Silicon briquets offer a practical, convenient, and economical means of adding this alloy. Ask to have one of our metallurgists call and explain more fully the advantages and use of "EM" silicon briquets.

The terms "Electromet" and "EM" are registered trade-marks of Union Carbide and Carbon Corporation.



Pallets holding approximately 4,000 lb. of "EM" silicon briquets can easily be handled by lift truc



This lifting device is used to handle pallets with overhead crane. An ordinary sling can also be use

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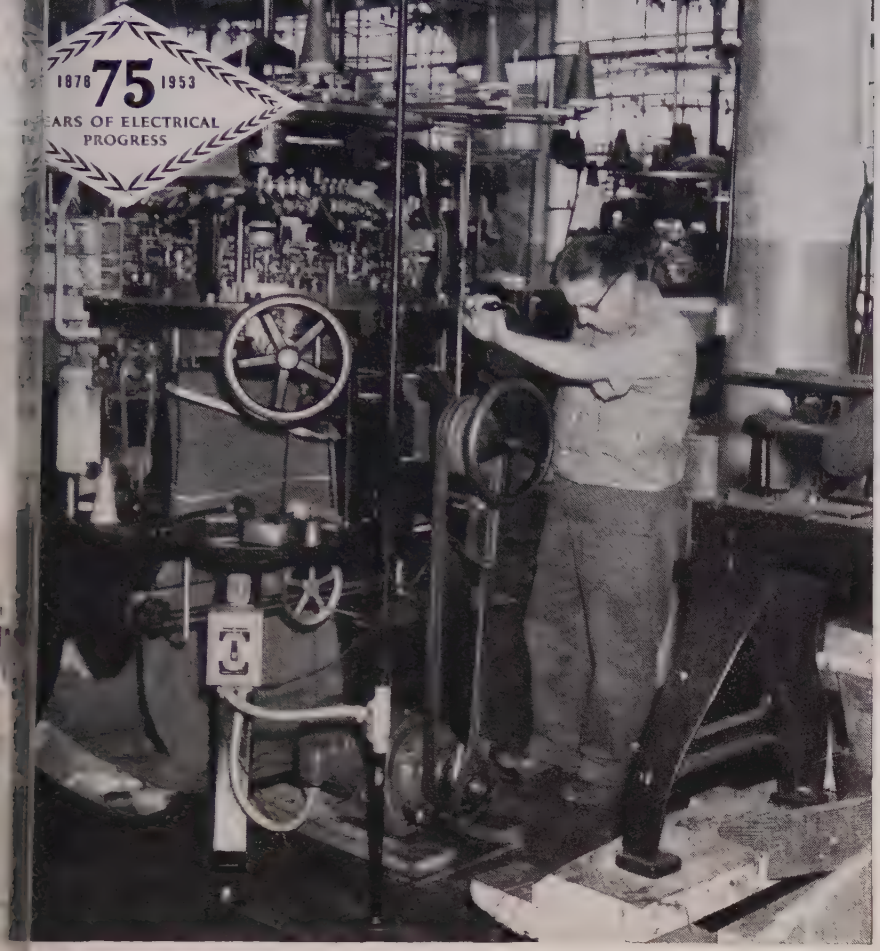
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HE BAMBERGER-REINTHAL CORPORATION, CLEVELAND—YOU, TOO, CAN . . .

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Bamberger-Reinthal Corporation veland, Ohio recently converted v G-E Gear-motors for machines ng sweaters, shirts, stoles, and Bamberger-Reinthal says: "These G-E Gear-motors are much more nt than our previous drive. re the latest thing as far as we're rned, and they're less expensive erate and maintain."

Gear-motors will modernize your tion too! Here's why:

GEAR-MOTORS ARE COMPACT, ring only a little more space than ular constant-speed motor of the same rating. No external speed reduction equipment is necessary.

G-E GEAR-MOTORS ARE RUGGED. They're engineered to give you years of dependable service under the most severe operating conditions.

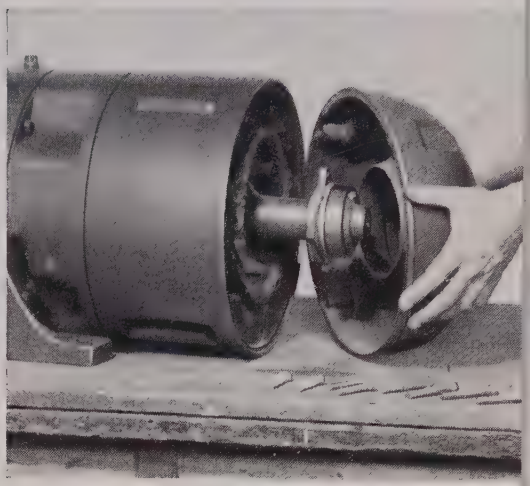
Assure yourself of getting the most efficient, easiest-to-maintain low-speed drive. Specify G-E Gear-motors.

A new stocking plan now makes one-week delivery available on over 300 models. Order your G-E Gear-motor through your nearest G.E. Apparatus Sales Office, or your Authorized G.E. Agent or Distributor. General Electric Co., Schenectady 5, N. Y. 755-11

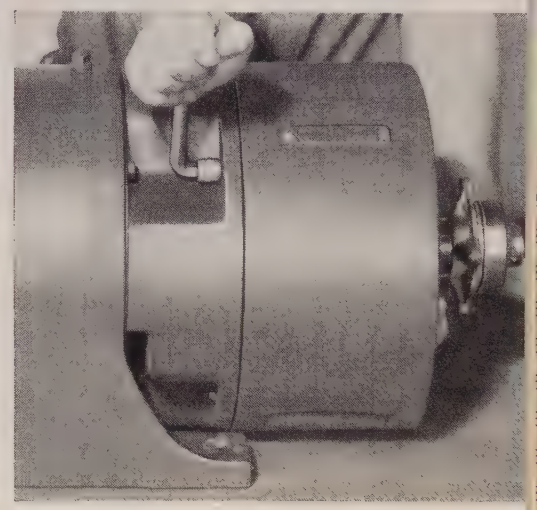
You can put your confidence in—

GENERAL ELECTRIC

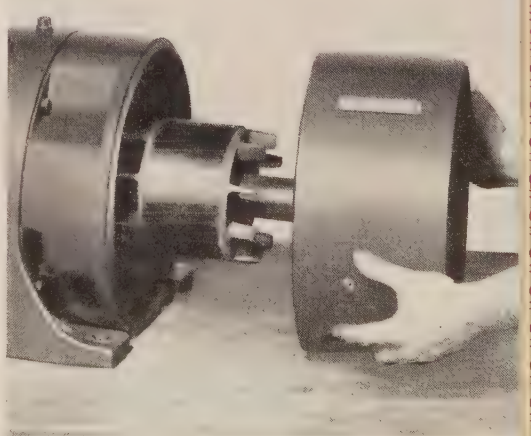
MAINTENANCE IS QUICK AND EASY



REMOVE ENDSHIELD FROM STATOR. If stator removal is required, it's never necessary to remove gear-motor from its foundation or disturb the gear train in any way.



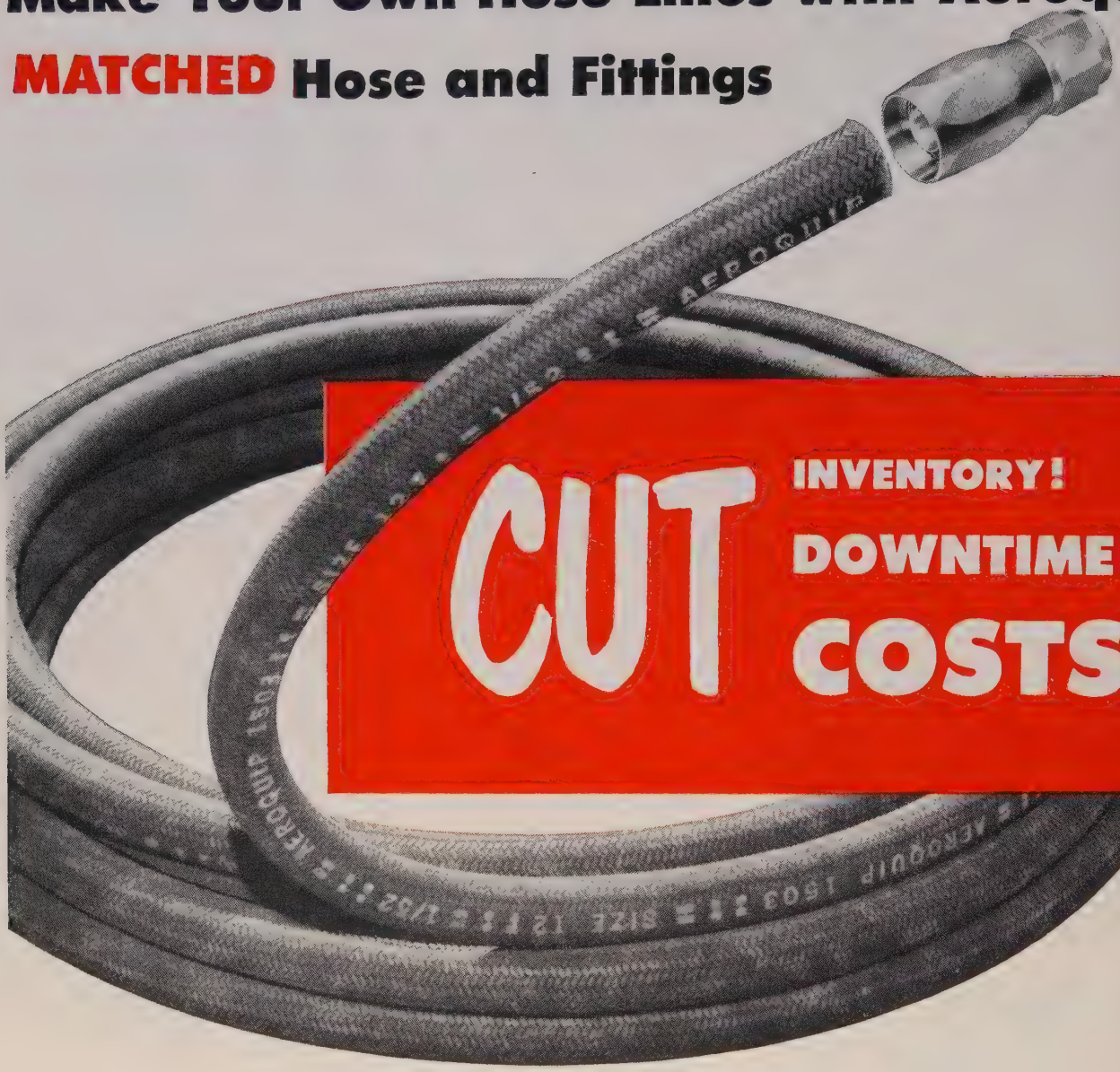
UNBOLT STATOR FRAME BOLTS. Adapter located between motor frame and gear housing gives easy access to stator frame bolts. Note: no special tools are needed.



NOW THE STATOR MAY BE REMOVED. Entire job takes only minutes. This is only one of many features designed to cut "down time" up to 50 per cent.

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Increases protection, and speeds packaging rate 100%



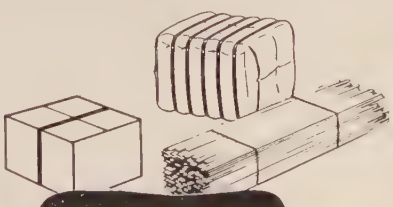
SUCCESSFUL SOLUTION to a difficult packing problem proved to be Acme Steel Strapping, here at the Orangeburg Mfg. Co., Orangeburg, N. Y.

Outstanding feature of sewer pipe made by Orangeburg Mfg. Co. is the material it's made of: fibers, impregnated with coal-tar pitch —non-corrosive, watertight, acid-resistant—but tricky to package.

Three different methods of binding the pipes together were tried without success. The materials either did an unsatisfactory job or proved to be too expensive.

But Acme Steel Strapping did it, doubled the packing rate, doubled the number of pipes per package. It was easy, fast, economical. And it insured Safe Arrival.

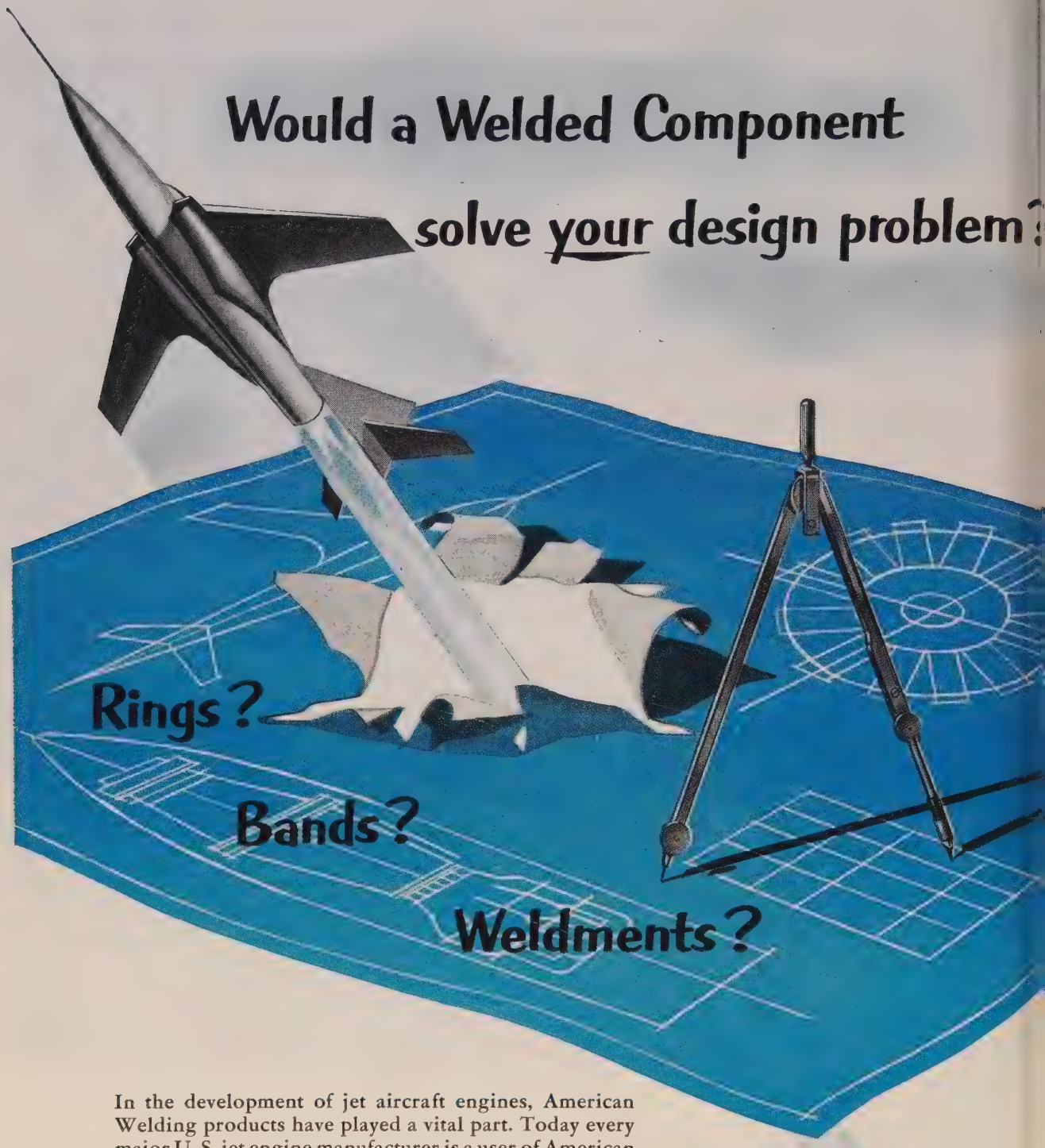
This is a typical example of how Acme Steel Strapping helped one manufacturer. Very likely it can help you. Maybe it can solve problems you scarcely know you have—but which cost you money just the same. Write to Acme Steel Products Division, Dept. S53.



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The Metalworking Outlook

May 11, 1953

Sound and Fury

All the noise generated at the Senate and House committee hearings on proposed Taft-Hartley changes may prove to be only a tempest in a teapot. Both committees are in executive sessions now, and chances are that this Congress will come up with little to change materially the present labor laws. Reason: Unions believe that if any change comes it will hit them, so many groups are now quietly pressuring for no change at all. While industry wants some T-H shifts, it would also settle for the status quo.

Productivity Gage in Steel?

Steel wage talks that begin May 14 will get down to cases about the end of the month when industry representatives are expected to propose a system for productivity increases. Management has been working for some time trying to develop a good yardstick to measure productivity. At the crucial parley with U.S. Steel Corp., David J. McDonald will represent the steelworkers and John A. Stephens the corporation. The outlook: No strike.

Reaction to Price Hikes

One effect of the widespread increases in steel extras will be to slow the trend among steel consumers to slit their own sheets into strip. But the pattern of the extras won't mean that fabricators who already slit their own will abandon the practice. Reaction to the increases has been mild—no decline in demand, no Congressional investigation, few vocal protests.

Defense Planning Progresses

The administration's thinking about running the defense program has not yet solidified, but these three objectives are fundamental: More civilian control, more efficient operation and a sounder system of planning. The President's reorganization plan for the Defense department is a step toward reaching the first two objectives. It would add six more assistant secretaries to give the department enough supervisors to intensify such programs as standardization and research.

Company Character and Defense

The Republicans' approach to sounder defense planning is typified by these company characteristics Deputy Secretary of Defense Roger M. Kyes says will guide the Defense department in choosing organizations to comprise the mobilization base: Sufficient technical and management knowledge to accomplish the production task assigned; sufficient manpower, facilities and equipment to do a defense job; large enough capacity to make it economically practical for the company to be a defense supplier; and a proper defense-civilian ratio of business so that the company can efficiently handle the military work.

Less for Stand-by Plants

Defense Secretary Charles Wilson's budget which he last week submitted to the White House makes unexpectedly low provision for

ction-Engineering News—p. 115 The Market Outlook—p. 181

stand-by and multiple-source plants for the mobilization base. He predicts the department will actually spend $43 billion in fiscal 1954, $2.4 billion less than Mr. Truman forecasted. Mr. Wilson asks for $36.2 billion in new money for fiscal 1954, $5 billion less than Mr. Truman requested. The service that gets the steepest cut is the Air Force. No curtailment is coming for ammunition.

Foreign Aid: Still Too Much

The first Congressional reaction to President Eisenhower's request for $5.8 billion for foreign aid is that the cut of $1.7 billion from the Truman $7.5 billion request is not sufficient. The White House now wants $4 billion for military aid, $1 billion for defense payments abroad and the remaining $800 million for special weapons, development and technical funds for abroad, strategic materials, special assistance for the Near East, Israel, Arabs, India and Pakistan and multilateral aid and contributions to international organizations.

Break Coming in Brass Prices?

Watch for a downward adjustment in brass and wire mill product prices. Fabricators are buying copper at 30 cents, yet basing on 32.6 cents—an average of 60 per cent domestic copper and 40 per cent foreign. Now that foreign metal is available at 30 cents or a shade under, there's reluctance to buy Chilean metal at 36.5 cents. A small independent brass or wire mill is likely to make the first break. Brass mill scrap-buying prices may be in for revision, too.

Straws in the Wind

Watch for more development of new business centers in downtown metropolitan areas such as have been undertaken in Boston, Philadelphia, Pittsburgh and Washington . . . Business inventories at the end of March were valued at $76.6 billion, up $1.4 billion from a year ago and the highest in history . . . Defense department will suspend its project for the development of atomic-powered airplanes and aircraft carriers . . . Private industry, not the government, will undertake a power project on the Idaho-Oregon border . . . Contributions by corporations to charitable and philanthropic organizations in 1953 will probably exceed the $300 million given last year.

What Industry Is Doing

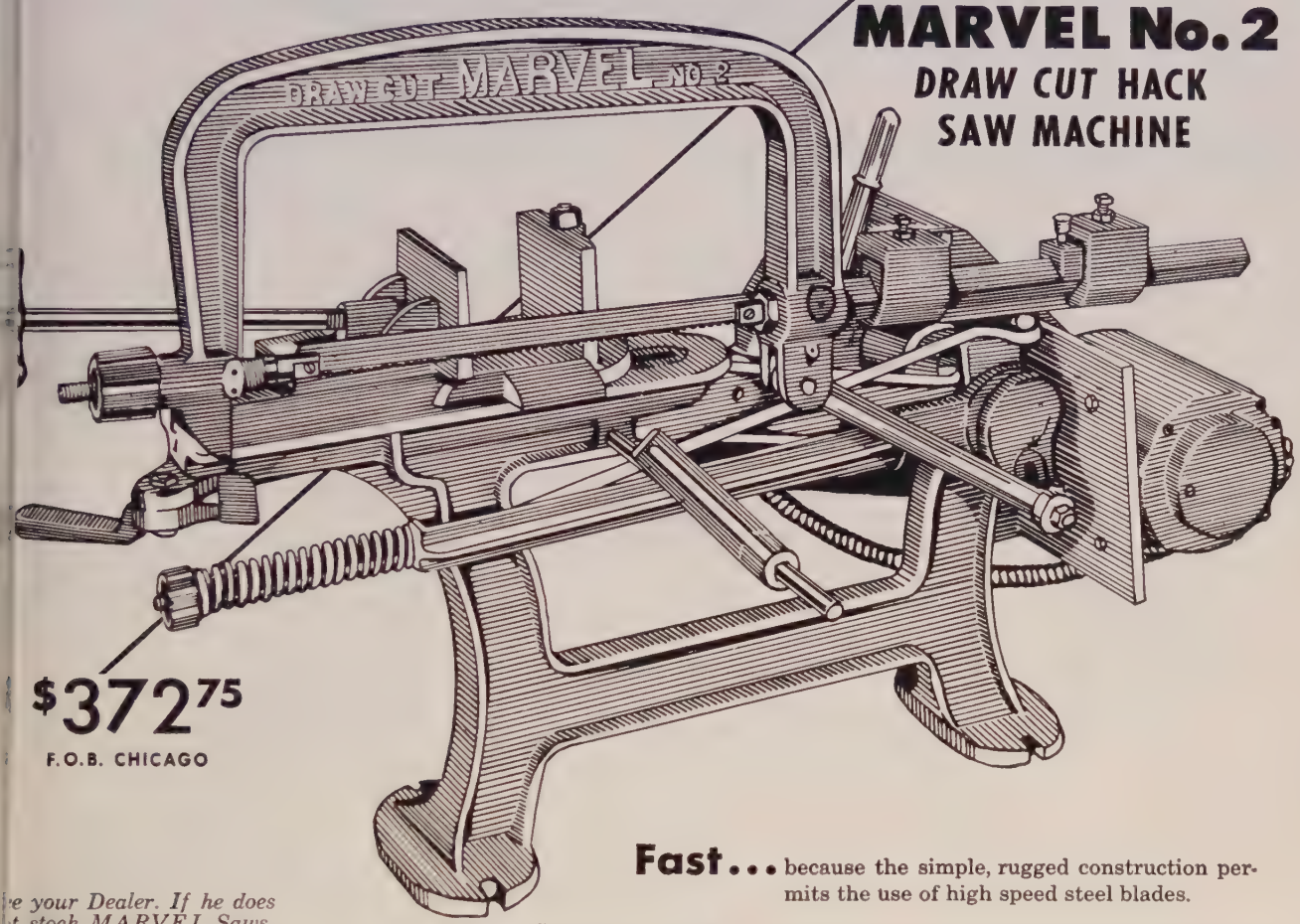
Expenditures on construction, now about 6 per cent ahead of last year, may rise to a record $33 billion in 1953, despite a decline in industrial building (p. 75) . . . Mangaslag Inc. is nearing completion of its pilot plant for manganese recovery at Pittston, Pa. (p. 76) . . . Wildcat strikes are an ever-increasing threat to industry (p. 77) . . . Makers of casters are attempting to formulate standards while holding the line on prices (p. 78) . . . Business pays an average of 15 per cent of all state taxes (p. 79) . . . Production of liquefied petroleum gas rose 7 per cent in 1952 and still has a large market potential (p. 80) . . . It pays off business-wise to employ handicapped persons (p. 86).

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Capacity up to 8" round

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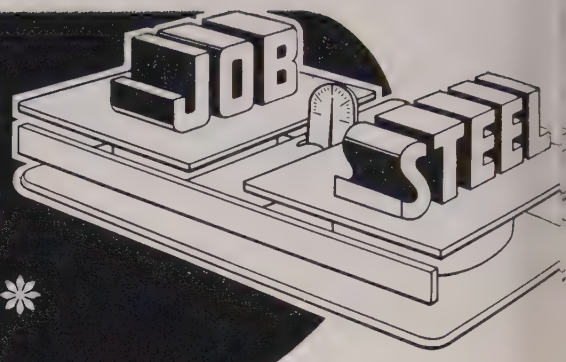
Economical... because of its automatic relief on the return stroke, the blade will last and last and last.

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* ***The value of steel (or any other commodity) is not measured by the pounds you buy per dollar but by how well it performs a service or function you need.***

That's the gist of NAPA's Value Analysis Program and embodied in the association's manual, "Cutting Costs by Analyzing Values."

That principle—and by no mere coincidence—also expresses the *Reliance Job-Fitting Idea*—that the sheet and strip you buy must *fit your job*. It applies to *picked-to-order* warehouse steel no less than to *rolled-to-order* mill steel.



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Here's how Dependable Dan pinpoints the Reliance JOB-FITTING idea . . .

- It's knowing our "stuff"—what our steel can and cannot be expected to do.
- It's knowing *your* job—what you expect the steel to do for you.
- It's *picking* in-stock steel that's best suited to your immediate need.
- It's delivering it your way and on time.

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Our Trade Policy

Determining foreign trade policy is one of the most challenging problems confronting the Eisenhower administration. Recognizing this fact, the President asked that the Reciprocal Trade Act, due to expire June 12, be extended for another year. In seeking this extension, he is really asking for more time in which to formulate policy.

Advocates of protection are willing to go along with extension of the present law, but they insist upon authorizing new safeguards to protect domestic industry from certain provisions of the old law. Their ideas are incorporated in a bill introduced by Representative Richard M. Simpson of Pennsylvania, now being debated before the House Ways & Means Committee.

Thus far little of the testimony presented by either side has been impressive. Speakers for protection prove that certain domestic industries will be harmed seriously. Administrative spokesmen argue that any considerable tightening of protection will cause economic distress among foreign nations which must be relieved by additional financial aid from us.

These considerations deserve careful attention, but there is another factor that often is ignored. It is the character of our principal imports. They are copper, tin, lead, zinc, coffee, newsprint, crude rubber, crude petroleum, fuel oil, cane sugar, unmanufactured wool, etc. They are not watches, briar pipes or pottery.

And how about these raw materials which are our major imports? Do we need to import them? According to the famous Paley report, "Resources for Freedom," between 1917 and 1953 the United States "consumed more of both metals and mineral fuels than had been used by all the world in all history." In 1900 we exported a net surplus of 15 per cent of what we consumed. By 1950 we had to import 9 per cent of our consumption to make up for our deficit in supply. By 1975 we will be required to import 20 per cent of a greatly increased consumption to make up for our deficit in domestic supply.

Isn't it clear that whatever our foreign trade policy ultimately may be, it must be built upon the fundamental assumption that we are destined to be major importers of raw materials?

E. C. Shaner

EDITOR-IN-CHIEF

DIVERSIFIED OWNERSHIP: In current talk about economic systems one wonders how many of the world's more than 2 billion inhabitants really know what we mean by American capitalism. We doubt whether one out of a thousand has any conception of what it means.

To hundreds of millions in Asia, Africa and parts of Europe and South America the word "capitalism" has no meaning whatever. To a

few millions in Japan, England, France, India, Australia and a few European industrial countries, it has a distorted meaning. To them, capitalism is a system whereby a family group owns an enterprise. The idea that a company such as American Telephone & Telegraph can have more than a million stockholders is unbelievable. That any big American corporation should have more stockholders than employees is fantastic. That a little American company with annual sales of 6 or 8 million dollars, should be owned by three or four hundred stockholders, two-thirds of whom are employees, is absolutely unthinkable.

When the world grasps the tremendous impact of the wide dispersal of ownership of American corporations, a new respect for a really miraculous capitalistic system will have been created.

* * *

IT'S ABILITY TO BUY: According to an Associated Press dispatch from Geneva, the United Nations Economic Commission for Europe is urging automobile manufacturers of Western Europe to abandon diversified production and to concentrate on 3 basic lines.

The commission's report pointed out that while there is 1 car for every 3 inhabitants in the United States, there is only 1 for 32 inhabitants in Western Europe and only 1 for 107 inhabitants in the Soviet Union. These great gaps in automobile densities are attributed to "different living standards and fiscal policies but might become less marked if cheaper cars, produced on a scale of at least 100,000 per year, became available in Europe."

This may be true, but a surer way would be to adopt policies which would give the individual as good a break as he gets under the American system. Ability to buy is the answer.

* * *

RADIO VS. BATHS: Hidden in the 1950 census are surprising figures on the use of American household facilities in 1940 and 1950. In 1940, of 34 million occupied dwellings, 2.5 per cent had no toilet facilities, 38.4 per cent had no bath or shower, 27.4 per cent had no refrigeration, 17.2 per cent no radio and 21.3 per cent no electric lighting. By 1950, of 42.5 million occupied dwellings, 1.6 per cent had no toilet facilities, 25.7 per cent no bath or shower, 8.7 per cent no refrigeration, 4.4 per cent no radio and 6.0 per cent no electric lighting.

Isn't it odd that as recently as 1950 nearly 11 million American homes were without bathtub or shower, whereas less than 2 million lacked radios and only 2.6 million were without electric lights?

* * *

OUR ROLE IN SHIPPING: A glance at the position of the United States ship operation and its shipbuilding reveals a strange contrast. As of the middle of last year the total tonnage of merchant vessels of the world was 80,216,000. Of this total, 25,627,000 tons belonged to the United States operators and 18,795,000 tons to owners in the British Commonwealth. Norway was the only other country with a tonnage exceeding 5 million.

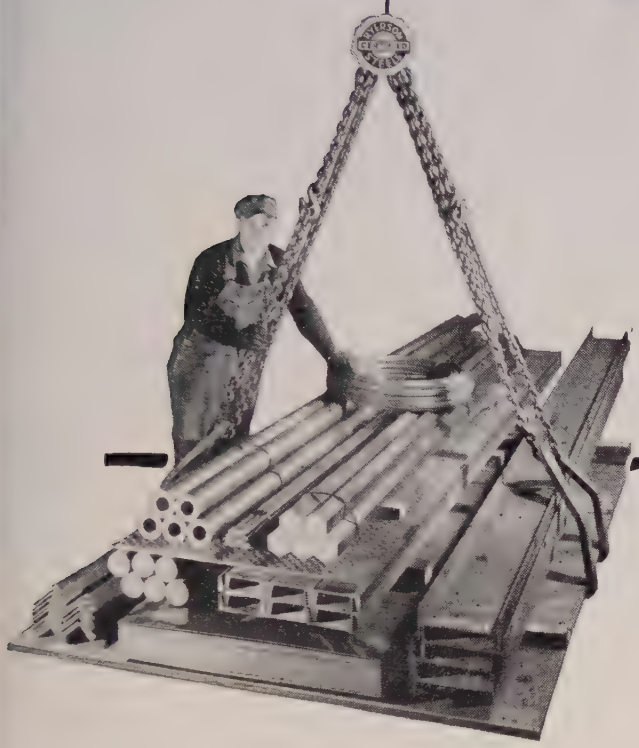
Last July Great Britain had more than 6 million tons of shipping under construction. Sweden and Germany each had nearly 2 million tons under way. The United States was fourth with 1,364,370 gross tons. Apparently we are not destined to have a sizable merchant marine in peacetime. We build ships chiefly under the pressure of war. We do not seem to thrive when competition in shipping is keen.

* * *

ALWAYS CONTROVERSIAL: News of the death of former Senator Robert F. Wagner brings to mind the fervor with which the National Labor Relations Act, known as the Wagner act, was hailed when it was passed in 1935. Labor leaders refer to it as their "Magna Charta." Whatever its true merit, its administration led to so much favoritism by the government towards unions that Congress passed the Taft-Hartley act in an effort to restore a balance of fairness. In recent testimony on the T-H, John L. Lewis—obviously fed up with too much government meddling in labor relations—proposed that all labor legislation enacted since 1932 be erased and that we start all over with a clean slate. We may never know how much to praise or blame the Wagner act, because its over-zealous friends killed it by administering it as a weapon of discrimination.

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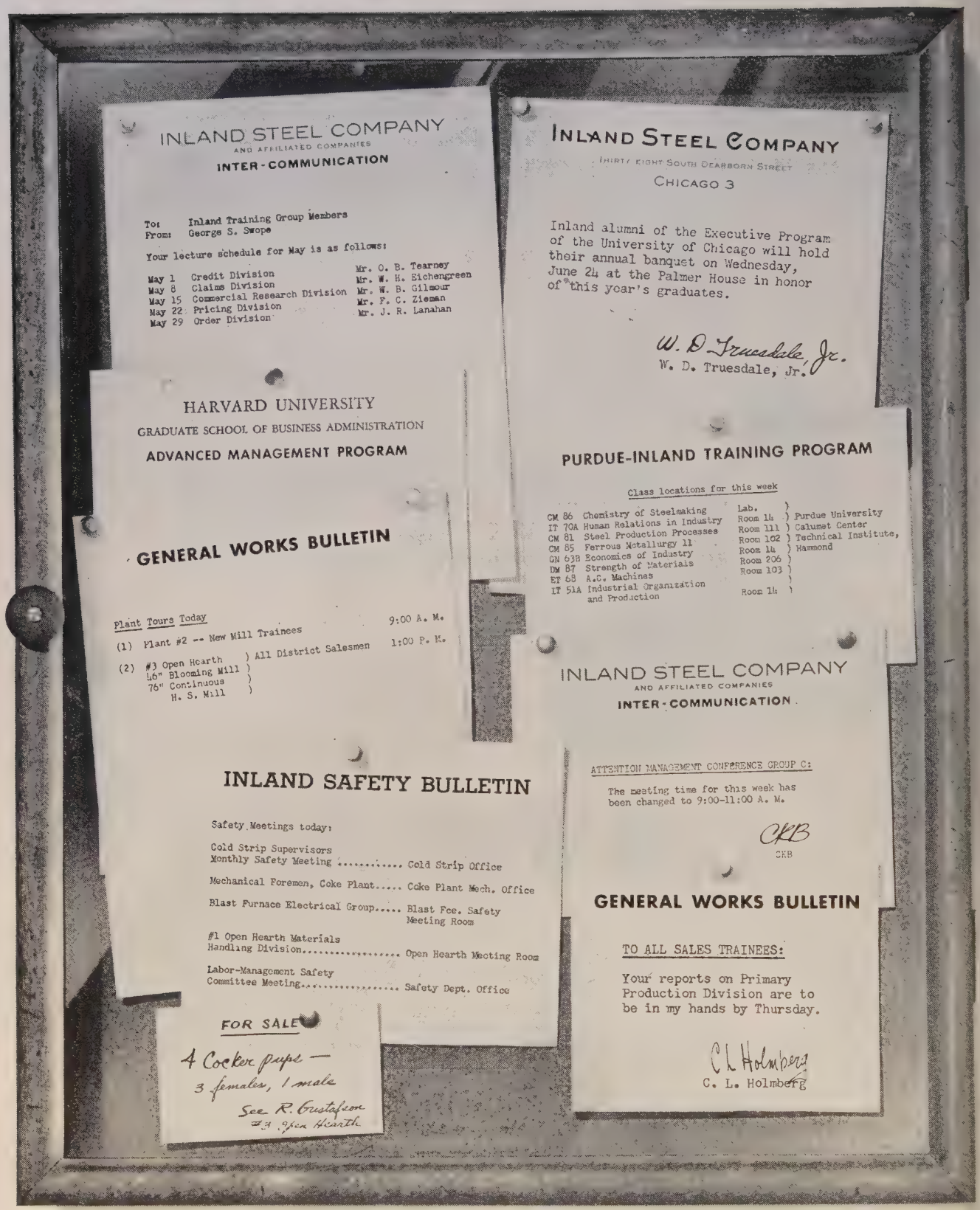
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NEW CONSTRUCTION ACTIVITY

Millions of Dollars Continental U. S.

Type of Construction	First 4 months 1953	1952
TOTAL NEW CONSTRUCTION	9,631	9,110
PRIVATE, TOTAL	6,723	6,287
Residental (excluding farm)	3,305	3,043
New dwelling units	2,945	2,710
Additions and alterations	284	283
Nonhousekeeping	76	50
Nonresidential building	1,704	1,605
Industrial	780	814
Warehouses, office buildings	199	141
Stores, restaurants and garages	249	164
Other nonresidential building	476	486
Religious	135	118
Educational	124	107
Hospital and institutional	103	130
Social and recreational	43	36
Miscellaneous	71	95
Farm construction	472	482
Public utility	1,209	1,135
Railroad	123	119
Telephone and telegraph	177	173
Other public utility	909	843
All other private	33	22
PUBLIC, TOTAL	2,908	2,823
Residential	184	230
Nonresidential building	1,273	1,215
Industrial	475	432
Educational	543	524
Hospital and institutional	134	154
Other nonresidential building	121	105
Military and naval	421	385
Highway	505	470
Sewer and water	221	201
Public service enterprises	51	51
Conservation and development	229	251
All other public	24	20

Source: Joint estimates of the Department of Commerce and the Department of Labor

33 Billion Build-Up in Building

Private industrial activity is off, but increased commercial and other non-industrial work points to a record 1953. Thus far the pace is 6 per cent faster than last year

-HIGH construction for 1953: t's the outlook for a key in- ry that will do a record $33 on worth of business this year, ite a decline in private indus- building.

he figures, above, for the first months of this year indicate the cornerstone for peak ac- y in 1953 has been laid. Some er cent more work has been e already this year than for same period in 1952. All last r some $32 billion worth of new struction was put in place, com- d with $31 billion in 1951.

Trio—Optimism about construction often means optimism about business generally. Many economists believe that building, plus steel production and auto assemblies, are the three basic indicators for all economic activity. All three are rolling well now.

Only cloud to lower the ceiling for construction prospects is declining industrial building. "But we expected that," points out H. C. Turner Jr., president of Turner Construction Co., New York. "Over the year it will be off about 20 per cent from the 1952 level, a little less than we had earlier anticipated." Although the peak in mobilization expansion is past, privately financed defense building is still heavy, says Henry L. Badoux, deputy director of NPA's Construction Controls Division. And the program still has 12 to 18 months to go.

Competition—The decline in private industrial activity is largely responsible for increased competition among construction firms, believes H. K. Ferguson Co., Cleveland. Uncertainty about defense plans is also leading to a few cancellations of private building programs, says H. A. Hallstein, executive vice president of Austin Co., Cleveland.

Housing starts thus far are on a par with 1952 performances, but F. W. Dodge Corp. President Thomas S. Holden believes that, when all this year's figures are in, new starts will be about 1 million, compared with 1.1 million in 1952. Giving the major impetus to an increased construction pace today is building for warehouses, offices, stores, restaurants, garages, religious, education and social structures, atomic projects, highways and sewer and water projects.

Getting Better—L. Abbett Post, executive vice president of American Institute of Steel Construction, points out that metal is still a limiting factor in building, but not nearly as much as it once was. March shipments of structural steel were 241,000 tons; the industry expected to get only 200,000.

"It looks like a good year to me," he says. "I'm really optimistic."

U. S. Underwrites Molybdenite

The U. S. government will underwrite expansion by the Molybdenite Corp. of Canada Ltd. This will be accomplished by a U. S. guarantee that during the next five years it will purchase six million pounds of molybdenite. The charge will be the lowest actual selling price per pound in the two months preceding the call with a floor of at least 63 cents.

Facilities to be expanded are located at Lacorne Township, Abitibi, East Quebec, Canada. During the

next five years the U. S. also has an option at market price on the company's total output of bismuth. This may total 450,000 pounds.

Plastic Pipe: Growing Uses

Use of plastic pipe has grown rapidly since World War II—in 1951, plastic pipe consumed about 5 million pounds of resin—and development of a new type of plastic pipe by Reflin Co., Gardena, Calif., indicates many new applications are ahead.

Reflin's new pipe is made of thermosetting (heat set), rigid, glass fiber reinforced polyester resin. It's produced in large diameters (up to 10 in.) and has a wide temperature range of operation (from −90° F to 230° F). Reflin engineers say the pipe material is completely inert and has no tendency to cold flow.

Of equal interest to the industrial, chemical and oil industries, says Louis L. Potomac, Reflin president, is the pipe's resistance to most salts, acids, hydrocarbons and natural corrosion elements commonly found in pipeline applications. The U. S. Navy Bureau of Ships tested the pipe as a replacement for copper-nickel and copper-brass shipboard piping systems. Navy tests showed reinforced polyester pipe superior to metal pipe in resistance to corrosion and shock and lower in installation and maintenance cost.

Reflin hopes to be able to step into the breach as the Petroleum Administration for Defense predicts a shortage of some 360,000 tons of oil country tubular goods will still exist at the end of 1953, despite 450,000 tons additional tubular capacity added during 1952.

Le Tourneau Agrees To Sell

R. G. Le Tourneau Inc., Peoria, Ill., has agreed to sell its earth-moving, tractor and related business to Westinghouse Air Brake Co., Wilmerding, Pa.

If the purchase goes through, Westinghouse Air will form a new subsidiary, Le Tourneau-Westinghouse Co. Mr. Le Tourneau will retain plants in Vicksburg, Miss., and Longview, Tex., for manufacture of special products for the U. S. government.



Old slag dumps like this may hide a bonanza as . . .

Plant for Manganese Recovery Nears Completion

TARGET DATE is August, 1953, for completion of the manganese-from-open-hearth-slag pilot plant under construction near Pittston, Pa., by Mangaslag Inc., Fort Worth, Texas.

The process to be used is that developed under the direction of P. H. Royster, assistant to chief metallurgist, Bureau of Mines. If the pilot plant proves successful, Mangaslag Inc. intends to build commercial plants for processing some 8 million tons of manganese-bearing open-hearth slag now going to waste. It sees this slag as a potential source for producing 400,000 to 500,000 tons of ferromanganese annually—about one-half of the total manganese requirements of the steel industry when the present steel expansion program is completed.

Free Raw Materials — Several steel companies have offered at no cost enough slag to supply the Pittston pilot plant. This will be charged at the rate of about 500 tons daily, having a manganese content of about 35 tons.

From this slag will be produced a spiegeleisen containing 17 to 21 per cent manganese, but containing also 3.5 to 4.5 per cent phosphorus. The excess phosphorus is to be removed by selective oxidation in a basic-lined bessemer converter. In this oxidation stage, 90 to 95 per cent of the manganese is to be converted into a sy thetic manganese ore containi less than 5 per cent iron, less th one-tenth of 1 per cent phosph us and from 55 to 60 per ce manganese. The product will be superior ferro-grade mangane ore which then can be remelted a furnace to produce 80 per ce ferromanganese containing le than 0.35 per cent phosphorus.

Offshoot—An attempt to e ploy anthracite coal as a subs tute for metallurgical coke is u der consideration in view of li ited facilities for producing t large amount of coke that wou be required for the chain of co mercial plants to be built aft successful pilot plant operatio

In building the pilot pla Mangaslag Inc. is proceeding unc a contract with the Defense Ma rials Procurement Agency.

Titanium: Pilot Unit Planned

Ferro Corp., Cleveland, may stall an integrated pilot unit production of titanium through electro-chemical process. C. Clawson, president, says that pla for the pilot unit, a prototype later and larger-scale producti facilities, are now under seric consideration. Ferro owns a 20 cent interest in Horizons-Titani Corp., developer of the elect chemical process.



ore workers are walking out on quickie strikes, so it's time to know . . .

ow To Fight "Wildcats"

Unauthorized work stoppages increasingly threaten industry in 1953. Prompt and firm action by management can discourage walkouts before they start

NGER to industry from wildcat kes is more serious than statis- indicate.

ommerce department figures w that 5325 work stoppages in 2 cost industry 52 million man- s. In January, 1953, there were work stoppages and in Febru- 550. Wildcat strikes probably te up no more than 5 per cent his rising total, but the extent their destruction is impossible measure.

e Prepared — Metalworking nagement should be on its guard inst a wave of wildcat strikes 1953. The outlook is for no ge strikes but scattered work ppages (STEEL, Feb. 16, p. 45). h no general strike in the offing, lkouts will be short but trouble- ne.

Unpredictability of wildcatters tinues to plague industry. When sting contracts rule out strikes, lkouts are intended to bring ssure on management, with or hout the approval of union of- als. Often a sudden decision is de to strike for a specific ob- tive, and most workers follow hout question.

Politics — Minor labor leaders y incite a strike to establish their leadership and to secure a higher position. Labor politics are responsible for many unauthorized strikes. Jurisdictional disputes arise, as in the building industry, and result in wildcat strikes. Often walkouts are intended to undermine the authority of an unpopular union official in the plant.

A glance at the checklist below will show this simple formula for curbing the ever-present threat of wildcat strikes. Carefully-drawn contracts barring unauthorized walkouts, followed by fair handling of grievances and firm treatment of workers breaking the contract produces a peaceful labor outlook.

Psychological Approach — Although these are general theories, there are many specific ways of halting a strike. An Illinois fabricator, confronted by a strike which had closed his plant for several days, learned of a union meeting to consider continuing the strike.

Realizing that the large majority of workers, who were passive towards continuation, would probably not bother to attend, he sent telegrams to all his men, announcing that pay would be distributed before the union meeting, giving the time and place of the affair. Once appraised of the hour and location of the meeting, workers turned out in large numbers and voted overwhelmingly against continuing the walkout.

Public Opinion—A Missouri manufacturer employed public opinion to end a strike. He published his

To W-I-N Over Quickie Strikes

Write a Good Labor Contract—

Management should demand a "no walkout, no slowdown" clause in contracts. Labor unions should assume responsibility for workers staying on the job. Any disputes arising should be covered by recourse to an arbitrator.

Investigate Trouble Before It's Serious—

A grievance committee should investigate complaints before strike sentiment grows. Close co-operation between management and the worker will lead to disclosure of grievances before strikes are called.

Never Take a Weak Position—

Management should work with unions as closely as possible to end strikes. Management should enforce its labor contract by disciplining those responsible for the walkout. Workers will be less prone to strike if their company has a firm policy in regard to wildcat strikes.

complete labor contract as an advertisement in his town paper, pointing out agreements not to strike until a date far in the future. Workers returned to their jobs soon after.

A major automaker cuts down on strikes by utilizing a board to handle all grievances, thus ending strikes before they begin. This committee talks over each grievance with the men involved. Only after this procedure has been followed can a strike be authorized, according to the contract's terms. Management, with advance warning, can make recommendations to stop a walkout. Better understanding and better control of workers can stop wildcat strikes before they do their damage.

CIO Organizers Ready for Drive

In line with CIO President Walter Reuther's plan to organize the unorganized workers, the 300-man organizing staff of the union has undergone a shake-up which will get the members from behind a desk and into the field.

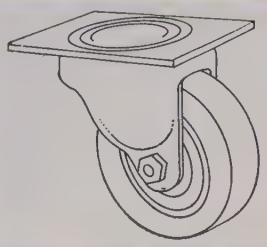
John Riffe, executive vice president of CIO, says the staff members spend too much time in service work. From now on, some 240 of them will do nothing but organizing work wherever the union thinks there is a need for it. Mr. Reuther mentioned the E. I. du Pont de Nemours & Co. Inc., Wilmington, Del., as a special target for the campaign.

President May Form New Panel

President Eisenhower is planning to re-establish the National Labor-Management Panel to assist the Federal Mediation & Conciliation Service in formulating policy and in handling important dispute cases. David L. Cole, former director of the service, revealed that to a closed session of a House appropriations subcommittee on Mar. 24, and it was just released.

Labor Market in Good Condition

The Bureau of Labor Statistics reports that layoffs of factory workers in March equalled the lowest rate since World War II, 8 per 1000 employees. Hiring, at the rate of 43 per 1000 on the payroll, was 10 per cent above March, 1952.



CASTERS:

Manufacturers try to formulate standards while holding the line on prices

THERE'S a lot of push and pull going on in the caster-making industry over the problems of prices and standardization.

Little or no price increases for casters over the last two years coupled with ever rising costs have resulted in pressure for general price increases. But competition has taken up where OPS left off. Result: No general price increases are in the offing though rises on some items are projected for the last half of 1953. Manufacturers tugged in two directions say: "We don't want to increase prices, but we have to get the profit margin back in there somewhere."

How Much?—An eastern caster manufacturer estimates the casters for furniture and appliances cost about 12 or 14 cents a unit. Casters going into industrial use average about $2 to $3 a unit. Some special casters, such as those for certain aircraft applications, weigh 900 pounds and cost close to $1000 per unit.

Then there's the matter of standardization. One caster manufacturer guesstimates there are some 15,000 sizes and types of casters. Any large manufacturer probably stocks wheels and components for 4000 to 5000 combinations and conservatively will do 65 per cent of his business on 20 per cent or less of that total number of combinations. Caster makers are thus forced to carry huge inventories of slow moving parts which a few simple design changes in the products for which they're intended could eliminate.

Not Unanimous—Strangely enough, some caster makers are either ignoring or resisting the current move toward standardization. Firms with patents on special cushioning effects and wheel alloys are loath to change their specifications to meet a general standard. Many other manufacturers are working on similar developments for their own lines.

Spurring the industry on to take the step toward standardization is the movement in the federal government to set up federal standards for casters. The Air Force, biggest service customer, and other branches of the military are at work now formulating their standards. The industry and its association, the Caster & Floor Truck Manufacturers Association in Chicago, and the Commodity Standards Division of the Commerce department are working on the industry's set of standards. James S. Hanson, vice president, Fairbanks Co., New York, and general chairman of the association's equipment standardization program, says the six product task committees appointed last September are well advanced in their work.

The End Result—It's not certain which set of standards—the industry's or the government's — will have preference. But everyone seems certain that when the smoke clears away the casters industry will have a set of standards to enable them to reduce their huge parts inventory.

The difference between a caster and a wheel is not size. A caster is a wheel or wheels mounted in a swivel or rigid frame or yoke. Some 20 to 30 companies produce them, selling $37.2 million worth in 1952 and $35 million in 1951. Outlook is for dollar volume to hold to the 1952 levels—or maybe gain just a little.

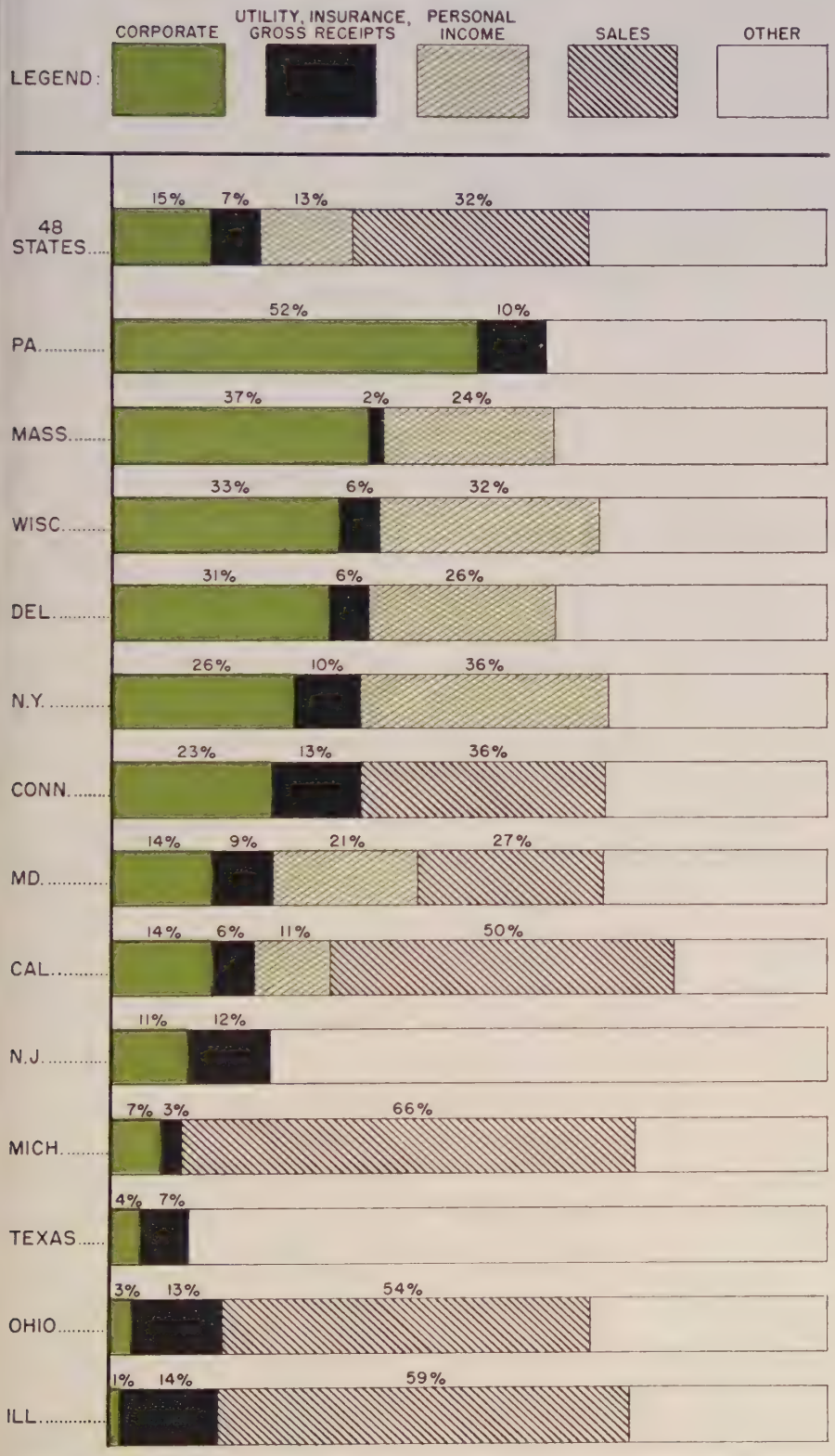
More For a Dollar—Behind that outlook will be greatly increased unit sales as defense work ordinarily takes more of the heavier, costlier industrial casters whereas civilian customers, appliance, transportation, warehouse, food and tobacco industries, tend to take medium weight casters which cost less per unit.

Corporations Prove Valuable Source for State Taxes

Business enterprises pay an average of 15 per cent of all state taxes. Illinois, Ohio attract industry with low corporate rates

STATE TAX INCOME, 1952

(Bureau of Census: Selected States)



"Other," in the case of Texas, includes 46 per cent from severance tax, in effect a corporate tax. Figures for all states exclude motor vehicle taxes.

IF STATE CORPORATE TAXES are the main influence in your choice of a new home for your business, study the accompanying graph before you make up your mind to move.

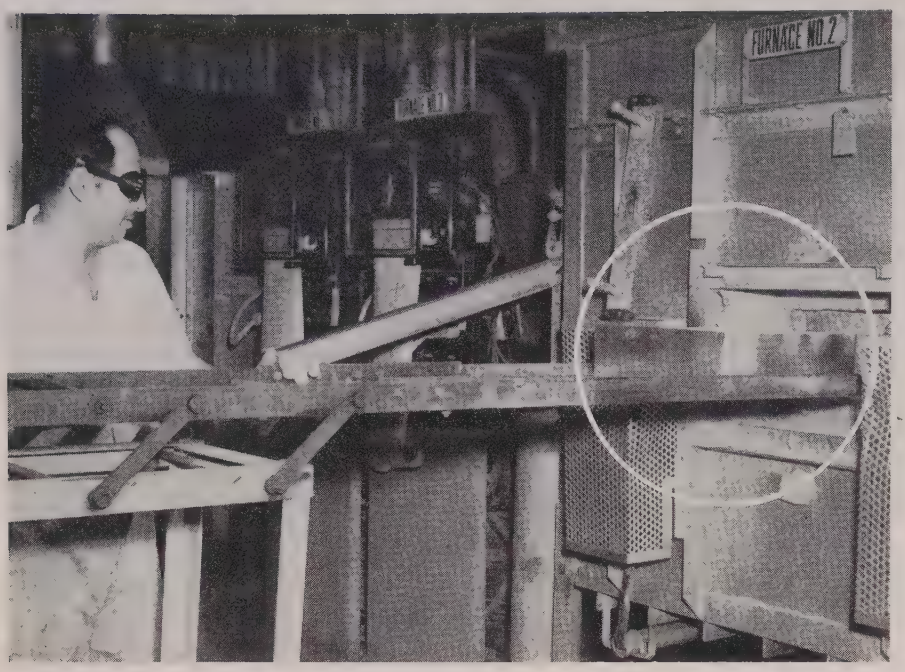
It reveals that Illinois is your best bet with only 1 per cent of its revenue derived from the coffers of business enterprises. Ohio isn't far behind with 3 per cent, followed by Michigan with 4 per cent. That may account for the wide variety of businesses in Chicago and Cleveland.

Black Gold—If the severance tax on oil taken from the ground were not levied against one of Texas' biggest industries, the Lone Star state would be right in there with 4 per cent from corporate taxes. But add a whopping 46 per for oil and that changes the picture.

Pennsylvania considers corporations as the chief source of its revenue, making 52 per cent of its income from them. That figure is so high that Ben Moreell, chairman of the board of Jones & Laughlin Steel Corp., Pittsburgh, says if it is hiked any higher it will "seriously threaten the economic future of the commonwealth."

Spreading the Burden — The Keystone state doesn't have either of the two methods of gaining revenue which may account for lower corporate taxes in other states—personal income tax and state-wide sales tax. It is significant that the states with the highest sales taxes also have the lowest taxes on big business. Equally significant is the large amount contributed by private citizens for income taxes in several of the larger industrial states. New York, Wisconsin, Massachusetts and Delaware probably would have higher corporate taxes were it not for that.

The two states that get least from business profits get the most from utilities and insurance receipts. That must be considered along with corporate taxes because it all means higher cost of doing business.



Fabulous Price for a Roaster

For one small pan—$6000. That's what the Lamp Division of Westinghouse Electric Corp. paid for a special pan, circled in the photograph, that wouldn't break up under quick temperature changes. It is made of palladium, first cousin to platinum, and is used in the manufacture of phosphor powders

Foundrymen's Meeting Features Shell Moulding

MOUNTING INTEREST in shell moulding was much in evidence at the 57th annual convention of the American Foundrymen's Society in Chicago last week. Four sessions devoted to this method of making castings played to overflow crowds.

Another feature of the technical program was two sessions on the casting of titanium, the metal which has been attracting attention of metallurgists in connection with jet turbine, atomic energy and other high temperature applications. This year marks the debut of titanium casting on the society's agenda.

Turnout—The convention was attended by more than 3000 persons and it was decided that Cleveland would be host to the 1954 convention and exhibit during the week of May 10.

Newly elected officers of AFS are: Collins L. Carter, president, Albion Malleable Iron Co., Albion, Mich., as president and Frank J. Dost, president, Sterling Foundry Co., Wellington, O., as vice president. Elected society directors for 3-year terms: E. C. Hoenicke, Foundry Division, Eaton Mfg. Co., Detroit; Martin J. Lefler, Oliver Corp., South Bend, Ind.; C. V. Nass, Beardsley & Piper Division, Pettibone Mulliken Corp., Chicago; Victor F. Stine, Pangborn Corp., Hagerstown, Md., and G. Ewing Tait, Dominion Engineering Works Ltd., Montreal, Que.

Rules Set for Nickel Stainless

Oil and gas operators who are subject to the provisions of NPA Orders M-46, M-46A and M-46B must obtain their requirements of nickel-bearing stainless steel for delivery in the third quarter from the Petroleum Administration for Defense.

That procedure was set up by NPA in Direction 1 to Defense Materials System Regulation 1 (production) and Direction 1 to DMS Regulation 2 (construction).

Under the new regulations, manufacturers of oil-field machinery and equipment who need nickel-bearing stainless for third-quarter delivery are permitted to self-authorize up to the amount authorized for the same purpose in the second quarter of 1953.

LP-Gas Continues Climb

LPGA president tells annual convention that domestic potential is still great

PRODUCTION of liquefied petroleum gas in 1952 continued its year-to-year gain by reaching a little over 4.5 billion gallons, or about 7 per cent better than 1951. Even though substantial, the increase was far below the 25 to 30 per cent gains of recent years.

F. N. Mabee, president of the Liquefied Petroleum Gas Association, told the association's annual convention and trade show in Chicago last week that the industry now has an estimated 8.5 million installations for all purposes. A good part of the gain in 1952 was for domestic and engine fuel use, which consumed 2683 million gallons, an increase of 9.2 per cent over 1951.

30 Years Old — The industry, which Mr. Mabee says now has "30 years of practical experience," is continually expanding its facilities. LP-gas now represents nearly half of all liquids produced at natural gasoline plants, and a sizable increase is due from plants now being completed. Others are beginning construction. Underground storage will reach in excess of 6 million barrels by the end of 1953, and the railroad tank car fleet now numbers over 18,000. At the same time, there is a marked increase in highway transports.

The association president pointed to the potential market for LP-gas in the domestic field. He said 23 per cent of the homes in the industry's market still use wood, coal, kerosene or gasoline for cooking; 38 per cent with central heating plants and 23 per cent with space heaters still burn wood or coal.

ASF To Close Tank Plant

American Steel Foundries will place in stand-by condition the government-owned East Chicago, Ind., Cast-Armor Division plant when current production schedules are completed. Company officials say that all departments of the plant, which turns out hulls and turrets for M-47 and M-48 tanks, will continue in operation until early July.

Defense Research

The Bureau of Standards is caught in the middle of the contract-award fracas

A WASHINGTON controversy about how defense research contracts should be awarded is getting as hot as a Bunsen burner.

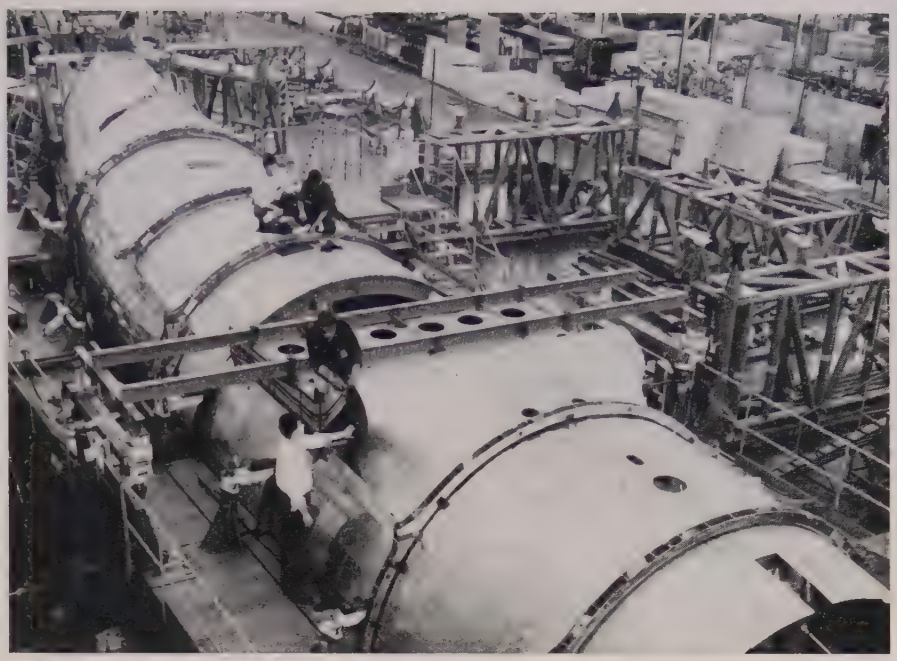
The big question is whether the Department of Defense should continue to use the National Bureau of Standards as an intermediary in placing military research contracts with private institutions or whether it should deal directly with those firms.

Go-Between — For years past, the bureau has served as a go-between in research contracts, because it is supposed to be able to pick out competent research firms and monitor their work. The Defense department transferred funds to the bureau, and the bureau paid the contractors. The bureau at present has 222 defense research contracts (valued at between $25 million and $30 million) outstanding for present fiscal year.

The current fracas over research awards got its start in March. Commerce Secretary Sinclair Weeks at that time wrote Defense Secretary Charles Wilson that a sizable increase in such contracts had been projected for fiscal 1954 and suggested that awarding procedures be investigated.

Mr. Wilson then placed a temporary freeze on defense research awards going to the Standards bureau, pending the outcome of an investigation of contracting procedures. Only contracts with Mr. Wilson's personal approval could be sent to the bureau.

Withdraw the Plug—This freeze, still in effect, is bringing a protest from scientists in the Standards bureau. Inasmuch as military research work comprises about 75 per cent of the bureau's load, these scientists fear that a sharp decline in the bureau's staff would result if Defense officials dealt directly with private research institutions. At least, say the scientists, withdraw the plug from the supply of defense research contracts until the administration makes up its mind.



Shaping Up for Combat Service

Seventy-five foot fuselage section of a Chase C-123B, new military assault-transport, takes shape on the production line at the Kaiser-Frazer Willow Run plant. The transport will carry 61 fully-equipped troops or 16,000 pounds of cargo, and is designed for front-line supply and hospital evacuation service

CHECKLIST ON CONTROLS

Materials Orders

COBALT—Amendment of May 1, 1953, of Schedule 2 of NPA Order M-80 removes prohibition of certain uses of cobalt salts and compounds made from residues not suitable for metallurgical applications. It was effective May 1.

MACHINERY—Issuance of NPA Order M-43A to supplant NPA Order M-43, which was revoked, reduces from 50 to 35 per cent of base period production the amount of construction machinery and other equipment in List A that will be reserved for defense-rated orders after June 30, 1953. All actions were effective May 6, 1953.

ALUMINUM—NPA Order M-5A, issued and effective May 6, 1953, sets up the basic rules for regulating production and distribution of aluminum controlled materials under the Defense Materials System after June 30, 1953.

ALUMINUM — Direction 1 to NPA Order M-5A, issued and effective May 6, 1953, requires aluminum producers to eliminate during the third quarter of this year any backlog of military and atomic energy orders carried over from June, 1953, and preceding months.

COPPER—NPA Order M-11A, issued and effective May 6, 1953, sets up percentages of copper and copper-base alloy products required to be set aside by producers under the Defense Materials System for delivery of military and atomic energy orders during and after the third quarter, 1953.

Defense Materials System

NICKEL STAINLESS STEEL—Direction 1 to DMS Regulation 1 and Direction 1 to DMS Regulation 2, both issued and effective Apr. 30, 1953, set forth the procedures for obtaining nickel-bearing stainless steel under the new Defense Materials System.

Controlled Materials Plan

FOREIGN, USED MATERIALS—Direction 22 to CMP Regulation 1 and Direction 12 to CMP Regulation 6, both issued May 6, 1953, authorize manufacturers of civilian products and builders to obtain and use foreign and used controlled materials in excess of second-quarter allotments. Direction 4 to CMP Regulation 1 was revoked. All actions were effective May 6.

SELECTED DEFENSE CONTRACTS IN EXCESS OF $100,000

PRODUCT	CONTRACTOR
Chucking Machines	W. E. Shipley Machinery Co., Philadelphia
Lathes, Toolroom	Hendey Machine Co., Torrington, Conn.
Trucks, Fork-Lift	Clark Equipment Co., Buchanan, Mich.
Tractors, Gasoline	Buda Co., Harvey, Ill.
Tractors, Warehouse	Clark Equipment Co., Buchanan, Mich.
Parts for Tanks	Continental Motors Corp., Muskegon, Mich.
Shells, 105 mm	Thor Corp., Chicago
Shells, Mortar	Hardwicke-Etter Co., Sherman, Tex.
Fuzes	A-P Controls Corp., Milwaukee
	Frank J. Curran Co., Downers Grove, Ill.
Metal Parts for Fuzes	Rulon Co., Chicago
Primers, Percussion	Harper-Wyman Co., Chicago
Feed Mechanisms, 20 mm	Sunbeam Corp., Chicago

Windows of Washington

By E. C. KREUTZBERG *Washington Editor*

Debate on operation of the National Bureau of Standards stirs Washington. Secretary of Commerce Sinclair Weeks protests too-free claims of "fraud"

THE DISMISSAL and subsequent reinstatement of Dr. A. V. Astin as director of the National Bureau of Standards has touched off heated debates on functions of that organization.

The Dispute—On one hand, Secretary of Commerce Sinclair Weeks is carrying out a campaign to eliminate possible use of the bureau to attach a "fraud" label to products of private industry without thorough tests.

On the other hand, the National Academy of Sciences has joined other scientific groups in support of Dr. Astin who was dismissed by Secretary Weeks. Now reinstated, Dr. Astin will serve as director until a committee of scientists presents recommendations for future functioning of the bureau.

Prominent Case—The battery additive case which led to Dr. Astin's dismissal exemplifies what Mr. Weeks does not desire in the conduct of the bureau. In brief, a California manufacturer had brought out a battery additive about which the National Better Business Bureau complained. The Bureau of Standards under Dr. Astin criticized battery additives and the Federal Trade Commission and Post Office Department were in process of denouncing the product as a fraud.

The Senate Small Business Committee was then presented with testimonials from users who said they had been lengthening the life of batteries by using the additive. The U. S. Testing Co., Hoboken, N. J., reported that the additive did what the manufacturer claimed.

Policy—Looking further into the matter, Secretary Weeks found it had been the bureau's custom in such cases "to work closely with individuals and organizations who might have an interest in the final outcome, submitting their work to them before publication and seeking their advice and guidance."

Mr. Weeks says, "I cannot help but wonder how many similar cases have never been heard about—how many entrepreneurs who were convinced they have a good thing for the people were licked before they started."

The situation, including merits of the battery additive and proper conduct of the Bureau of Standards, has been referred to a committee of scientists who are to report their findings this summer. Mr. Weeks says he favors use of the bureau in protecting the public against frauds, but he will not permit it to attach the fraud label to any product without positive proof.

Metalworking Resolutions . . .

Resolutions before Congress now include several of particular interest to metalworking management. These include:

H. R. 4610, introduced by Rep. Carl D. Perkins (Dem., Ky.), to authorize the government to encourage synthetic liquid fuel production by private industry through a subsidy system. It would authorize governmental financial grants to encourage private industry to conduct research on synthetic fuel processes.

H. R. 4687, by Rep. James Van Zandt (Rep., Pa.) would amend the Atomic Energy Act of 1946 by encouraging development of atomic power for industrial purposes by private industry.

H. R. 4691, by Rep. A. L. Miller (Rep., Nebr.) would establish a Federal Minerals Corp. which would be the government's sole agency in fields of minerals and mining and would have authority to enter into contracts and loans and acquire property.

H. J. Res. 239, by Rep. Louis Heller (Dem., N. Y.) would establish a Joint Committee on Natural Resources. It would study and recommend federal policies for development and conservation of natural resources.

H. R. 4824, by Rep. John Fogarty (Dem., R. I.) would amend the Internal Revenue Code to provide that deduction for depreciation in the case of machine tools, textile machinery and other industrial production machinery should be based on replacement cost or original cost, whichever is higher.



United Press

Heads Mediation Service

Clyde M. Mills was appointed acting director of the Federal Mediation & Conciliation Service by President Eisenhower. Mr. Mills had been assistant director of the bureau, which aids parties involved in labor disputes to settle their differences. He replaces Charles P. Miller, who resigned

Aid for Defense Contractors . . .

"Navy Contractor's Guide to Occupational Deferment of Essential Employees" is the title of a new booklet to help defense contractors seeking deferment for key workers. Copies may be obtained at 15 cents from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Census Appropriation Cut . . .

In cutting the appropriation bill for the State, Justice and Commerce departments, the House Appropriation Committee disallowed $23.4 million which had been requested for a special census of business, transportation, manufacturers, mineral industries and agriculture.



THE BAKER-RAULANG CO. 1853 100th anniversary 1953 THE BAKER-RAULANG CO.

This BAKER TRUCK handles any shape load...

and stacks it in any position!

You name the load—the Baker "Octopus" illustrated will handle it, whether it's a drum, a roll of newsprint, a packing case, a piece of machinery, a bale of cotton or a pallet load of cartons. Moreover, it will pick it up, transport it, raise or lower it, shift it to left or right, revolve it, up-end it, or stack it in any position. In fact, it will handle it with no more physical effort than is needed to operate the simple hydraulic controls.

The "Octopus" consists of a standard Baker Fork Truck equipped with a variety of Baker attachments—360° revolving head, 4-purpose carriage, up-ender, drum clamp, etc.—which may be applied individually or in combinations. While one truck may never be called on to perform all these functions, the "Octopus" demonstrates the range of utility of Baker fork trucks and attachments.

Baker®
industrial trucks

write for 6-page special report on the application of Baker attachments to various loads.

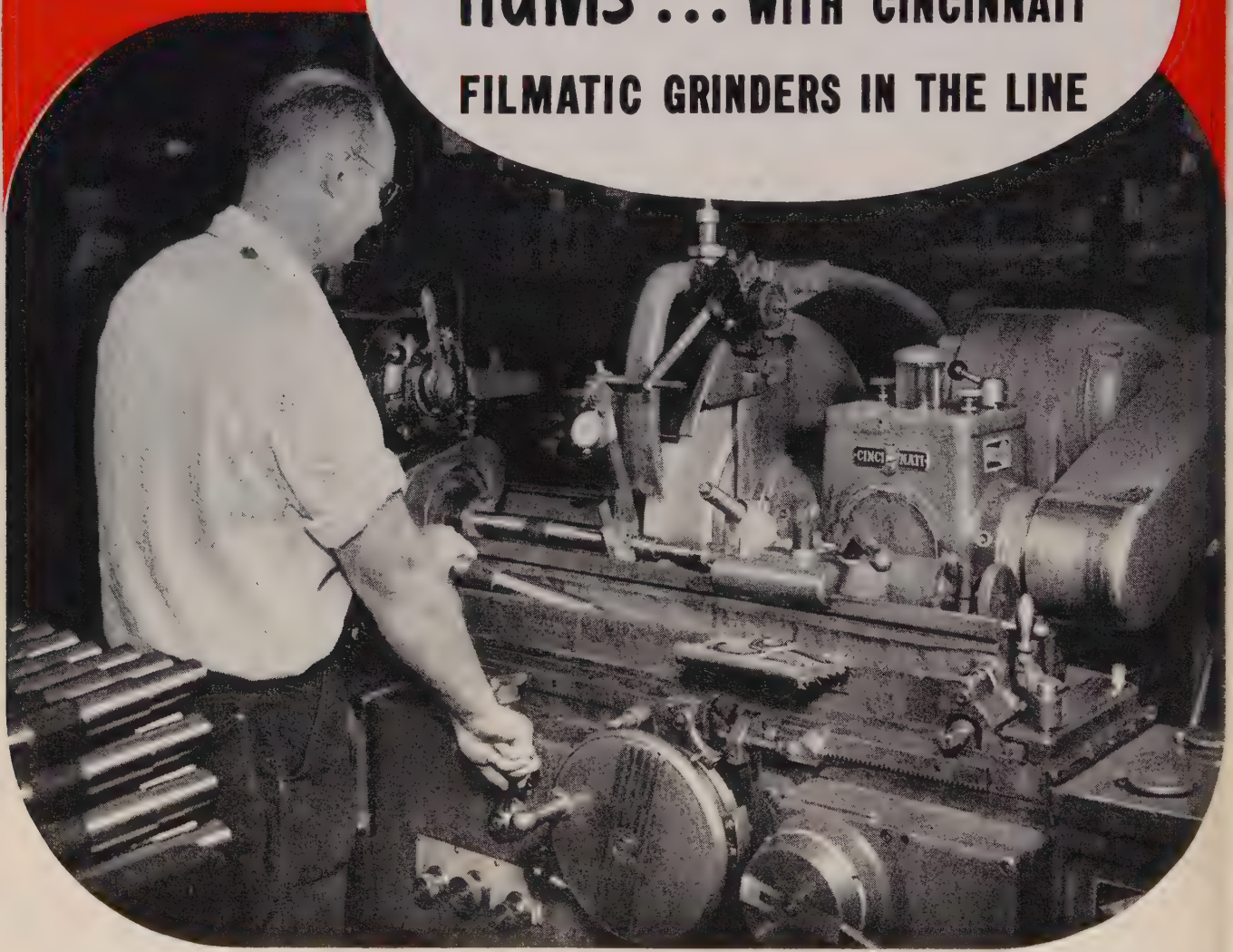
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BAKER-LULL Corporation, *Subsidiary*, Minneapolis, Minn.
Material Handling and Construction Equipment.

FILMATIC

Motor shafts are ground in a jiffy on a CINCINNATI FILMATIC 6" Plain Hydraulic Grinding Machine . . . automatic infeed for the short sections; conventional traverse for the longer sections.

MOTOR PRODUCTION HUMS . . . WITH CINCINNATI FILMATIC GRINDERS IN THE LINE



To keep production going, machines must be reliable; they must not overly fatigue the operator. Both of these conditions are licked for good by the two CINCINNATI FILMATIC Grinders illustrated here, installed in the plant of a prominent electric motor manufacturer.

OPERATOR PREFERENCE

The men like to run these CINCINNATIS because they're easy to operate. Automatic infeed is initiated by one lever, and the complete grinding cycle follows automatically. Controls are conveniently grouped. FILMATIC spindle bearings are self-adjusting.

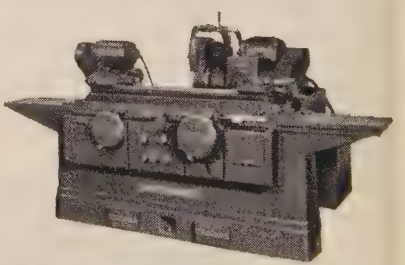
MACHINE RELIABILITY

You can always count on CINCINNATI FILMATIC Grinding Machines. They are sturdily constructed to remove metal rapidly to a high-quality finish. In the illustration above, a finish of 4 to 6 micro-inches is produced on motor shafts.

When replacing productively obsolete machines or purchasing new equipment, operator preference and high degree of machine reliability are the factors to look for. CINCINNATI FILMATICS have them. Ask for literature.

CINCINNATI GRINDERS INCORPORATED, CINCINNATI 9, OHIO

CINCINNATI FILMATIC 6"-L Plain Hydraulic Grinding Machine. Complete specifications for 6" and 10"-L machines may be obtained by writing for catalog No. G-566-2.



CINCINNATI

CINCINNATI

CENTERTYPE GRINDING MACHINES • CENTERLESS GRINDING MACHINES
CENTERLESS LAPPING MACHINES • MICRO-CENTRIC GRINDING MACHINES

Britons Look at U.S. Machine Tool Industry

A British productivity team report spots what it considers both good and bad features in the U. S. industry. Management-labor relations are not all they seem, it says

"THERE ARE no outstanding differences between the American machine tool industry . . . and the British machine tool industry . . ." is the general conclusion of the British Productivity Council team report on machine tools. "The best . . . in America is certainly no better than the best in Britain, and the range between best and worst is probably quite as wide in the U. S. as in Britain."

After that quiet opening, the report makes several observations which — whether you agree with them or not—could help the American machine tool industry, in particular, and U.S. metalworking, generally, get a more objective look at itself.

On productivity: "The American industry has, on average, higher productivity than the productivity in the British industry."

On incentives: "The American operator works no harder than the British operator but he gets a better standard of living for his efforts. This better standard is only partly justified by the slightly higher productivity of the industry; in the main it is subsidized by those industries which have given America her prosperity."

On machinist trainees: "Apprenticeships are not considered necessary for the majority of production jobs in the American industry; 'green' labor is quickly trained to competence on a single job basis . . . These operators, on their particular jobs, are at least as good as the full apprenticeship craftsman in Britain, who generally insists on remaining on one particular type of job for most of his life."

On labor relations: "Although surface indications might give the impression of happy management-labor relations, we formed the definite opinion that, basically, relations could not always be described as happy."

On seniority rights: "The 'seniority' clauses in company-union agreements, providing generally for 'last in first out' employment, produce stable labor force conditions . . . A disadvantage is that good workers may have to be laid off before not-so-good workers."

In a comparison of the U.S. and U.K. machine tool industry, the team report found: Number of firms in the field, U.S.—250, U.K.—356; total employment, U.S.—55,000, U.K.—40,000; machine tools installed in productive usages, U.S.—1,760,000, U.K.—866,000; production of new machine tools (1945 to mid-1949), U.S.—356,500, U.K.—202,900 and export trade in periods of near normal conditions, U.S.—15 to 20 per cent of output, U.K.—40 to 45 per cent of output.

Copies of the BPC machine tool team report may be obtained for a nominal sum from the Office of Technical Services, Washington.

Who Benefits from Imports?

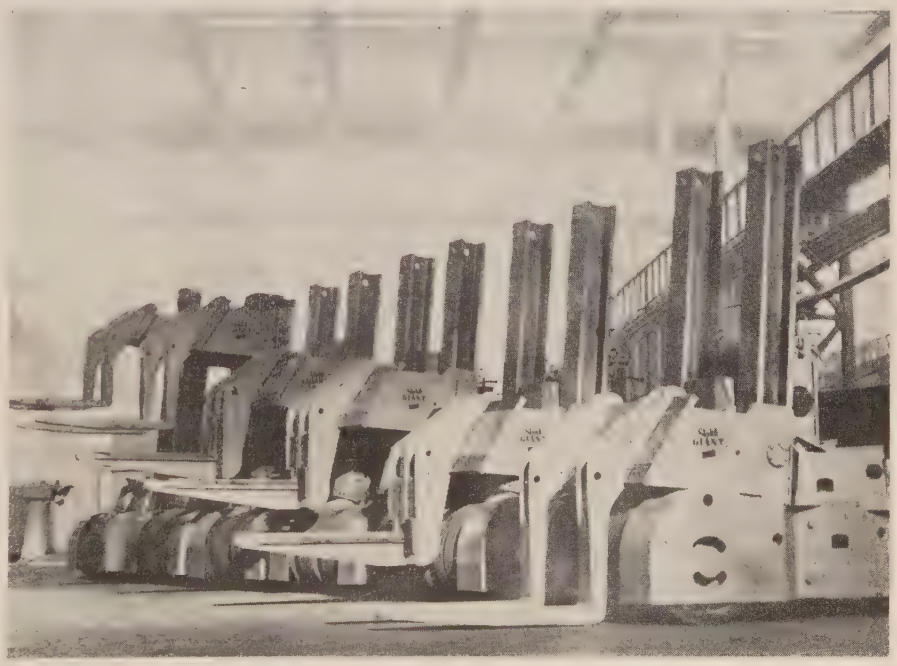
Wordage piles higher on the tariff question. Walter Bedell Smith, undersecretary of state, told the Chamber of Commerce of the U.S.: "In the present Congress about 40 bills have been introduced to cut off or reduce imports from nations with which we are closely associated . . . A number of these bills would cut imports of oil.

"At present about 70 per cent of the oil we import originates in Venezuela.

"Venezuela bought from us in 1952 over $200 million worth of machinery and vehicles and about $78 million worth of metals and manufactured products . . . Their purchases (of all types of goods) in 1952 totaled about $500 million . . . earned almost entirely from oil operations. . . . The time has long since passed when we could afford to make our foreign economic policy decisions on the basis of the interests of particular industries or groups."

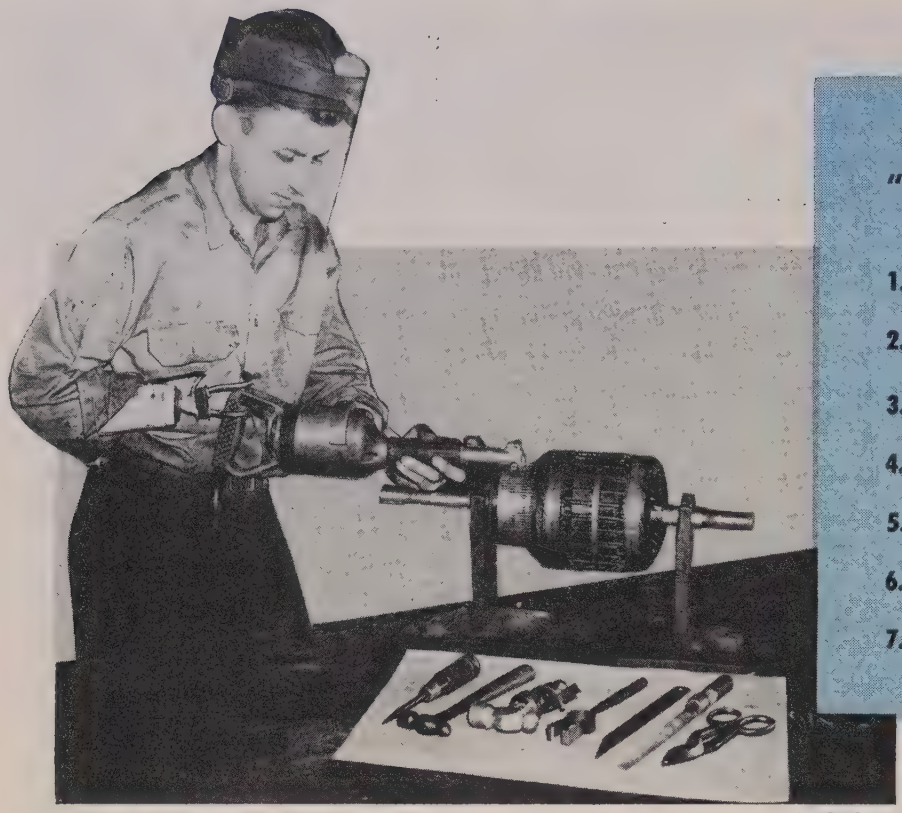
U.S. Steel, French Agreement

The French Overseas Ministry has approved a series of agreements involving the U. S. Steel Corp. for research and operation of manganese desposits in the French African colony of Gabon. The French retain controlling interest.



American 'Giants' for French Steel Mill

Modern American materials handling equipment went to France in the form of these "Skylift Giant" electric industrial trucks made by Automatic Transportation Co., Chicago. The six trucks shown plus a seventh went into operation in September, 1952, at the Societe Anonyme de Loraine de Laminage Continu (SOLLAC) steel plant in Alsace, France. They can handle up to 40,000-pound loads



U. S. Steel

Seven Steps to a Successful "Employ-the-Handicapped" Program

1. Adopt a clear policy.
2. Survey the job requirements.
3. Interview the applicant.
4. Determine his physical capabilities.
5. Place him at the correct job.
6. Allow for a "break-in" period.
7. Plan a regular follow-up.

By ROBERT O. JAYNES
Assistant Editor

The Handicapped . . .

IT IS GOOD BUSINESS TO EMPLOY THEM

HOW WOULD YOU like to loan out $21 million with assurance of repayment in four years at a high rate of interest? In effect, that is what the U. S. government did in 1951.

The Office of Vocational Rehabilitation, formerly a part of the Federal Security Administration, now under the new Department of Health, Education & Welfare, spent that amount on the rehabilitation of nearly 67,000 handicapped persons. Not only did those persons increase their earning power from $16 million to $116 million; not only will they pay back the entire $21 million in income taxes in less than four years; but they also are adding more than 100 million man-hours annually to the nation's productive effort.

More Than One — That is one good reason why it will pay you to hire handicapped persons. Here is another:

About one-third of all those rehabilitated every year return to industry as skilled or semiskilled workers. While there is no general shortage of labor today, some areas, such as Detroit, still feel the pinch. And skilled labor is always hard to find anywhere. Also handicapped workers could help avert a shortage in times of emergency in the general labor market. There are about 2 million of them available at present, and another 250,000 become disabled each year because of industrial accidents.

There is still another good reason for hiring the handicapped: It is good public relations. In this way, the manufacturer is accepting directly his share in the community responsibility for those having a serious disability. At the same time he is gaining a good worker.

We're All Disabled—But what constitutes disability? Generally, the Civil Service Commission considers persons with the following to be permanently handicapped but capable of rehabilitation: Amputations or orthopedic deformities; hard of hearing or deaf; blind or partially blind; color blindness or faulty depth perception; arrested pulmonary tuberculosis; compensated heart disease. You can add many others to the list, including old age.

However, according to Dr. Max R. Burnell, head of the 118 medical departments in General Motors Corp., Detroit, all of us have handicaps. They simply vary in kind and degree. His philosophy, and that of GM, is not to stress what a man can't do, but what he can do.

Contributors — That philosophy is responsible for the rehabilitation program. In addition to the Office of Vocational Rehabilitation, the Veterans Administration and the Disabled American Veterans have been outstanding in this work. In 10 years under Public Laws 16 and 894, over 600,000 disabled veterans have been returned to productive lives, many of them in the metalworking trades.

Private organizations have helped in this work, too. For instance, Liberty Mutual Insurance Co., Boston, one of the largest writers of

ndustrial insurance, maintains its own center for retraining disabled workers. In addition, practically every type of disability has its own national organization sponsored by public fund drives.

Report Card—Once rehabilitated, the handicapped worker can more than hold his own if he is given a job matching his abilities. The survey on this page shows why. It includes nine distinct handicaps in 20 different types of industry. All types of workers from custodians to working foremen were included.

The Civil Service Commission conducted a similar survey during the war and came to the same general conclusions. Such well-known firms as Caterpillar Tractor Co., Peoria, Ill.; Walter Kidde & Co. Inc., Belleville, N. J.; Consolidated Vultee Aircraft Corp., San Diego, Calif.; and Minneapolis-Honeywell Regulator Co., Minneapolis, all report similar findings in surveys of handicapped employees in their plants.

Debunked—Despite the good reports, many employers claim they can't hire the handicapped because they think their workmen's compensation insurance rates would go higher. The Association of Casualty & Surety Companies, New York, says: "There is no provision in workmen's compensation insurance policies or rates that penalizes an employer for hiring handicapped workers."

Such policies are based on two things — the over-all accident experience of the company and the relative hazards of the work it performs. It has been proved that the presence of handicapped workers in a plant does not increase the accident experience of the company.

Another reason many give for not hiring handicaps is they take too much special attention. Most firms which do hire them say it isn't so. Special parking privileges are given some paraplegics, or time cards are tabbed for blind persons, but otherwise they are treated like any other employee.

More Serious Difficulties—Union practices and policies often offer stumbling blocks to successful hiring of disabled workers, but in many cases that can be straightened out amicably.

A real problem exists in the fact that few manufacturers understand the complex workmen's compensation laws which exist in every state of the union. In general, they hold the employer liable for injuries to workers while at their jobs. The tendency then is to shy away from handicapped workers who, because of a previous injury, may become totally disabled by a new accident. In 42 states, however, there are "second injury" laws or funds which make the employer liable only for the latter damage and not the total disability. The laws vary, so every employer should check his own state documents to determine his liability.

Some Who Do—Regardless of the problems involved, many companies do employ handicapped persons and are looking for more. In Cleveland, there are 52 blind persons working for 34 metalworking plants. Thompson Products Inc. alone has eight in its plants. Ford Motor Co., Detroit; General Electric Co., Schenectady, N. Y.; and International Business Machines Corp., New York, to mention a few, have outstanding records for hiring the handicapped.

One of the best known firms in this respect is International Harvester Co., Chicago. The company policy states: "If an applicant otherwise qualified for employment is physically fit to do the work for which he is being considered, without danger to himself or his fellow workers or the equipment, he may be employed."

Under that policy, International Harvester has over 5000 known handicapped employees throughout its operations, says Elizabeth J. Kuck, general supervisor of special personnel services. The type of work they do is not restricted to a bench in the corner, and that is true generally wherever you find handicapped workers. For instance, Oldsmobile Division of GM has 11 blind men in its Lansing, Mich., plant doing all kinds of work, including running a punch press.

Special Application—There are some metalworking companies, such as Paraplegics Mfg. Co. Inc., Franklin Park,Ill., who try to hire as many handicapped persons as they can. Paraplegics, with many of its employees in wheelchairs, produces electric and communications equipment.

Regardless of size of plant or product produced, employers who hire the handicapped report satisfaction with the policy. If you are considering such a move, it may be well to study the checklist on page 86. Such a program should be well planned throughout. It is only when a disabled person is fitted to his job, just as any employee should be fitted to the right job, that the best results are obtained. If this is done, you'll find it really is good business to hire the handicapped.

HOW THE HANDICAPPED WORKER STACKS UP

Average performance of approximately 11,000 impaired and 18,000 unimpaired matched workers in manufacturing plants	IMPAIRED WORKERS	UNIMPAIRED WORKERS
Days lost per 100 scheduled workdays	3.8	3.4
Nondisabling injuries per 10,000 exposure-hours	9.9	9.9
Disabling injuries per 1 million exposure-hours	8.9	9.5
Days lost for disabling injury per 100 scheduled workdays	0.10	0.11
Days of disability per disabling injury	14.5	14.9
Production efficiency of disabled worker compared with that of unimpaired worker	101.0	100.0
Voluntary quits per 100 workers in survey group	3.6	2.6

Source: Bureau of Labor Statistics

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High Strength with Excellent Cold-Forming Properties

N-A-X HIGH-TENSILE, having 50% greater strength than mild carbon steel, permits the use of thinner sections —resulting in lighter weight of products. It is a low-alloy steel—possessing much greater resistance to corrosion than mild carbon steel, with either painted or unpainted surfaces. Combined with this characteristic, it has high fatigue and toughness values at normal and sub-zero temperatures and the abrasion resistance of a medium high carbon steel—resulting in longer life of products.

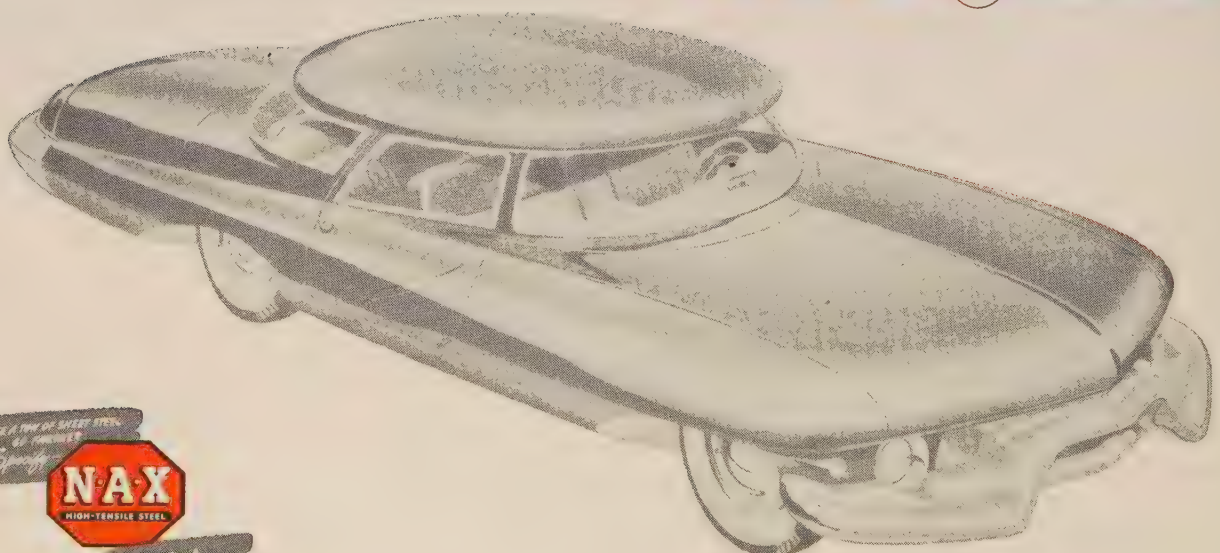
N-A-X HIGH-TENSILE, with its higher physical properties, can be readily formed into the most difficult stamped shapes, and its response to welding, by any method, is excellent. Due to its inherently fine grain and higher hardness, it can be ground and polished to a high degree of lustre at lower cost than can mild carbon steel.

Your product can be made lighter in weight . . . to last longer . . . and in some cases be manufactured more economically, when made of N-A-X HIGH-TENSILE steel.

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NATIONAL STEEL CORPORATION



KEEP YOUR SCRAP MOVING TO YOUR DEALER

By FLOYD G. LAWRENCE *Detroit Editor*

Mirrors of Motordom

Looking for new fields to conquer? Take a look at the manufacture of automation equipment. Automakers' requirements are creating a heavy demand for it

DETROIT

AUTOMATION equipment, sprouting between the machine tools of the automakers since the end of the war, forms the roots of a new industry that has come into flower during the past 12 months.

Builders of automation equipment contacted in the Detroit area report that their orders have increased 400-500 per cent within a single year. Backlogs, already running six to nine months, are still mounting.

Expansion — Wilson Machine Products, long-time maker of automotive jigs and fixtures, says that its new Wilson Automation Branch has assumed a preponderant position in its sales picture since its inception last July. Allied Steel & Conveyor Co. reports that it is contemplating the formation of a separate division to handle its bristling automation equipment business.

Just what has caused the automation boom is something hard to pin down, but these factors have undoubtedly played a part. 1. The rising cost of labor. 2. The increasing reliability of automation equipment. 3. The higher productivity and consequent lower cost of automation. Most automation installations will pay for themselves in about half a year or less.

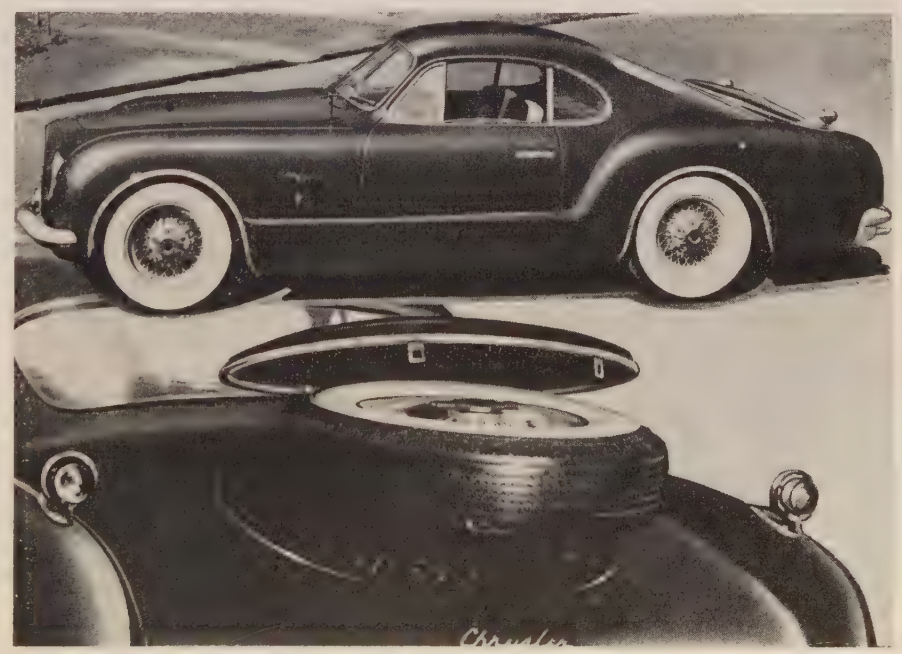
New Business — Regardless of what the primary cause may have been, automation equipment manufacture has become a new industry. Those presently in the field report that they have more work than they can comfortably handle, and, if you have the right kind of fabricating equipment, automation manufacture is a field you might well consider. But make haste slowly, the business is as unique as it is young.

Perhaps you're wondering just what automation equipment is anyway. Over-simplified, automation equipment is a shuttle or conveyor system which receives the work piece from one work station and transports it to the next in a position ready for feeding at the next. In some cases automation equipment will do the extracting and the feeding as well, but basically automation is automatic materials handling. It isn't usually part of the machine tool nor is it plant furniture either, and it's this in-between quality that gives the maker of automation equipment his unique role.

Keynote of Co-operation — The automation equipment builder may be working either for the equipment firm or for the plant buying the equipment. In either case close co-operation in plant layout is necessary and close attention to blueprints of the equipment the automation is to serve must be employed. That puts the automation equipment maker right in the middle in more ways than one. Only occasionally can his suggestions be incorporated in the building of the machine tool, such as coring out clearance ways for the shuttles of parts carriers. Quite often positioning of the equipment on the line can be altered slightly to give added clearance for automation equipment. But the automation builder's position between the plant layout men and the machine tool builders is a push-pull proposition.

Another factor you'll want to know before you take the automation jump is that most installations are a single shot deal with only occasional two or three-of-a-kind jobs for parallel lines. If there ever was a place where automation falls by the wayside it's in the manufacture of automation equipment itself. Careful engineering and ingenuity are the hallmark of the going automation equipment firm.

Tough Problems — Consider the basic problem of the automation engineer. Automation equipment is worthless if it is unreliable or requires extensive maintenance:



Jack-in-the-Box Spare Tire

To hide or not to hide the spare tire—Chrysler has solved the issue on a sports car, the "D'Elegance", by fitting the tire into a well on the rear deck from which it emerges automatically when a button is pushed. The D'Elegance made it's debut at the Auto-Lite Parade of Stars show in New York last month

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When something does go wrong, it must be easily located and readily repaired. Tricky wiring circuits must be avoided, and yet the machines and the automation equipment which serves them must be interlocked to prevent a pile up in case of stoppage and keep work flowing when all is well. Operation must be foolproof to prevent an unskilled operator from wrecking the equipment.

Delivery to many machines is a problem, too. A straight-through work cycle lends itself best to automation and a few feet of space between stations is a help. Often neither is available and the automation engineer must scorch the paint on his slide rule to come up with a simple answer.

The Plus Side—Still want to get into automation? If you have a creative engineering staff and a flexible shop with good mechanics you can probably make a go of it nicely, and there are other factors on your side. Machine tool companies are slowly modifying their basic machine designs to facilitate automation. In many cases the work piece need only be delivered to a feeding position on the machine and the machine does the rest. Owing to the preferences of installation and plant layout engineers, there seems little possibility that automation will ever become mass-produced or standardized to any marked degree.

That means that the machine tool builders will never want to fool with it and that the jobbing automation equipment shop which is willing to work closely with the tool builders has a clear field ahead.

Many plants are already in the field but there is a need for many more. The day of the semi-automatic factory is just around the corner, and for the automation equipment builder that means prosperity is just around the corner as well.

Car of the Week

A week's acquaintance with the Mercury Monterey makes known the fact that here is a very hasty hack indeed. Acceleration through the gears with the conventional transmission gives a satisfying belt in the back and the Mercury exhibits a marked zest for the road.

Interiors of the Mercury are well done with the possible exception of the "airplane" type heater controls on the dash. Aside from the fact that a person hesitates to pull into his driveway without being cleared to land, the lettering is on the horizontal and a cold person unacquainted with the car might as well be in an airplane. The design is not functional and seems like just a little too much attention to devote to a heater.

The tip of the speedometer needle was colored red, a very saucy looking thing during the daylight hours, but difficult to see at night on the road when dash illumination is preferentially reduced. Other instruments were well grouped and easy to read.

The overdrive unit is somewhat paradoxical. True, the engine "loafed" at sixty miles an hour, but it also loafed when the Merc was swung out to pass another car on the open road. After one such experience the overdrive was quietly locked out of the drive train for the duration of the week, and the Mercury proceeded to acquit itself beautifully as a road car. The Mercury holds the road in top style and the ride is good. The seat in the Merc raises the driver to a point where the somewhat high hood and its dummy air scoop don't interfere badly with visibility.

Like the Ford the Mercury will get a new overhead valve V-8 engine in 1954. Reported to deliver 145 hp, the new wings of Mercury promise to be even speedier.

Auto, Truck Output

U. S. and Canada

	1953	1952
January	612,815	424,559
February	623,793	464,557
March	746,933	525,024
April		570,464
May		542,559
June		542,478
July		226,134
August		322,755
September		595,715
October		656,767
November		548,782
December		569,715
Total		5,989,509

Week Ended	1953	1952
Apr. 4	170,567	125,668
Apr. 11	176,782	123,180
Apr. 18	162,171	131,657
Apr. 25	194,610	134,141
May 2	187,216	128,385
May 9	185,000*	130,509

Sources: Automotive Manufacturers Association, Ward's Automotive Reports. *Preliminary

Just Ask, "How Often?"

A new ruse to separate the car buyer from his roll is reported in Detroit. Harry Horsepower returns to his parked vehicle to find a tag reading "for your car and payments of only $12.50 for two years you can have a new dazzler." Harry makes a rough computation and figures it will cost him $300 plus his 1950 job.

He runs quickly to this benificent dealer and only if he reads the paper carefully before he signs does he find that the $12.50 is payable every two weeks, not every month.

Off the Envelope Back

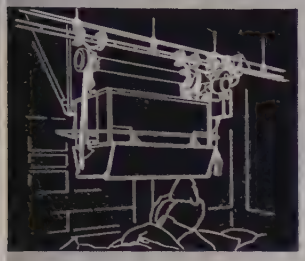
If the number of distress calls to AAA Clubs throughout the country can be considered a criterion, automobiles are getting better. Motorists, says the AAA, had 13 per cent less trouble in 1952 than in 1951. Of more than 42 million calls received, tire trouble caused 25.97 per cent of the yelps. Battery failure caused 25.56 per cent. Ignition trouble was 11.87 per cent.

Also contributing to the belief that today's cars are better than those of yesterday is the word that in 1925 the average car was only 6.5 years old when scrapped and had 25,570 miles on its speedometer. Today the average scrap age is 13.5 years with average mileage on the speedometer of 116,000.

Chrysler Corp. has elected E. C. Quinn president of Chrysler Division succeeding David A. Wallace who retired on April 30. I. T. O'Brien was appointed to the executive staff of L. L. Colbert, president of Chrysler Corp., in addition to continuing his present duties of supervising general production and subsidiary operations. Fred J. Lamborn was appointed special consultant to Mr. Colbert in addition to continuing his present duties as vice president and general manager of Dodge Division.



Dispatch to multiple stations



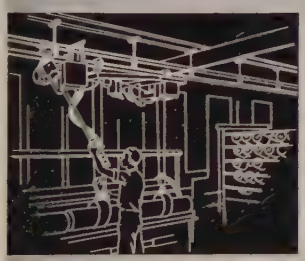
Delivery to fixed stations



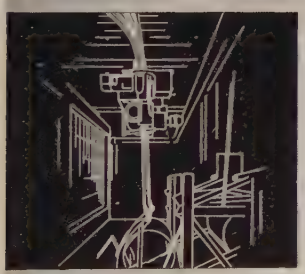
Delivery to multiple stations



Delivery to movable stations

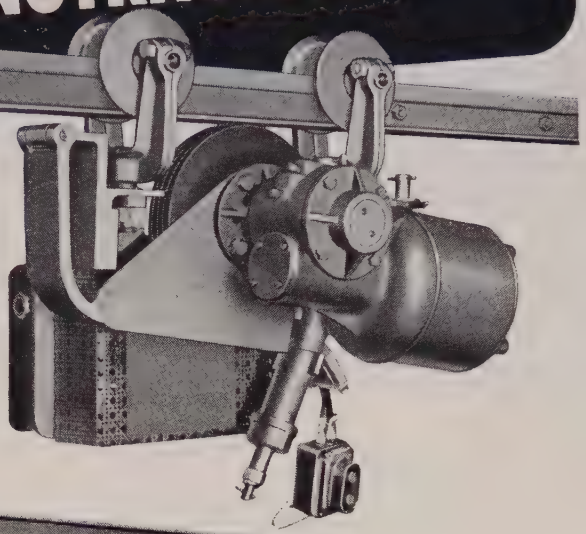


Selective dispatch between multiple stations

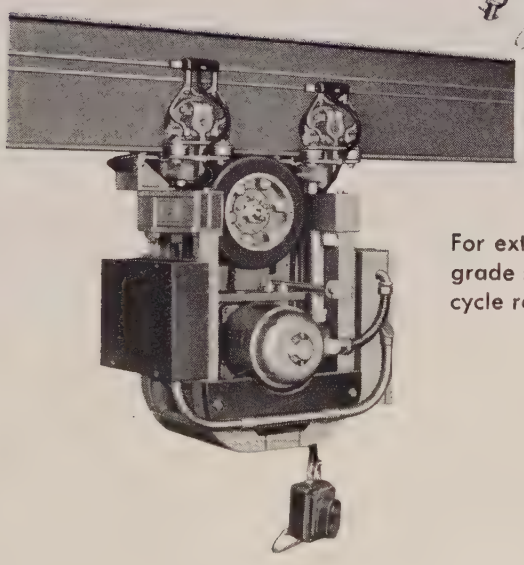


Load and delivery to multiple stations

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For low cost propulsion of a 1-ton hoist or carrier.



For extremely heavy-grade speed or duty-cycle requirements.

To propel heavy loads or automatic carriers on overhead monorail systems, here are two new American MonoRail MonoTractors. Through the application of simple electrical and mechanical devices, American MonoTractor Units perform a wide variety of automatic handling operations.

While unique in many features, such systems are built mainly from standard units. MonoTractors can be applied to carriers operating on any smooth bottom track. An American MonoRail Engineer is available for consultation in every important industrial area.

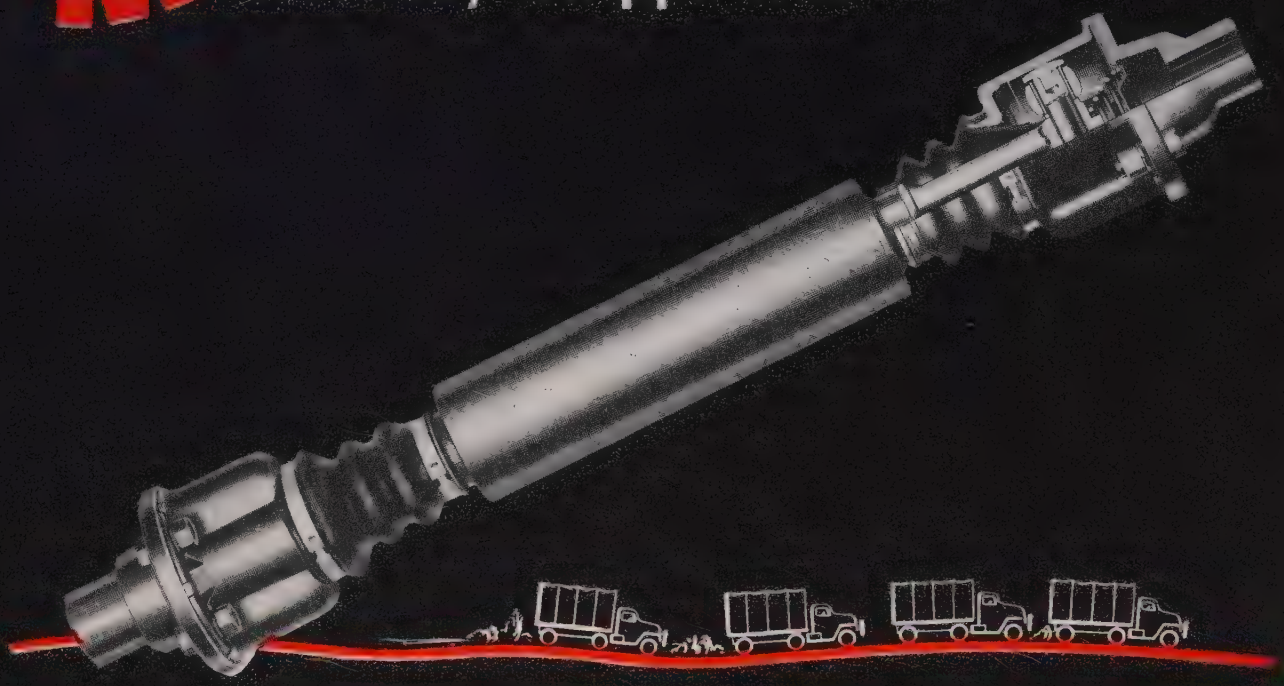
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Sharon has long been a prime supplier of steels for drive shafts, because making precision steel in production quantities has, over the years, become a Sharon-steel habit.

*Specialists in STAINLESS, ALLOY, COLD ROLLED and COATED Strip Steels.

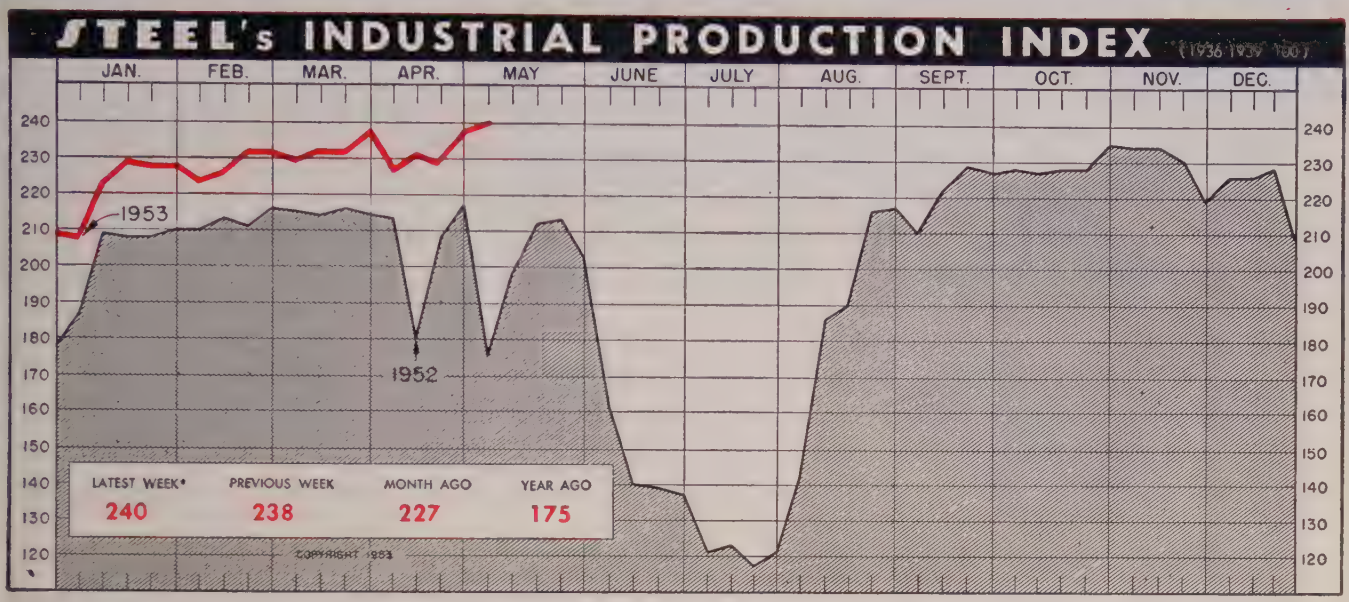
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Sharon, Pennsylvania

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For information on Titanium Developments contact Mallory-Sharon Titanium Corp., Niles, Ohio

SHARONSTEEL



*Week ended May 2

Based upon and weighted as follows: Steelworks Operations 35%; Electric Power Output 23%; Freight Car Loadings 22%; and Automotive Assemblies (Wards' Reports) 20%.

Industrial production may soon start to level out on a high plateau. Steelmaking and automotive operations are losing some of their upward momentum

INDUSTRIAL OUTPUT, now at a postwar high, probably won't climb much further in the coming weeks.

Prime indicators of production are pointing to a general leveling off period. Key industries are expected to hold their business volume near current levels: Advances, if any, will be slight.

Near the Limit—The steel industry is boosting production almost to the limit. At the end of March, steel output received a severe blow from the permanent closedown of a large open-hearth facility in the Pittsburgh area. Since then, production has inched up toward the record tonnages of the earlier March weeks, as other plants bring new furnaces into operation. Steel output in the next few weeks may continue to rise but only at the same slow pace.

Automotive production, on the other hand, may take a turn downward. Makers of passenger cars are scheduling their May output at only slightly above the April turnout. April production schedules weren't met by the industry, and this lag could easily recur in May. Truck operations are expected to decline in May.

Freight car loadings have been making a poor showing for some months, and only recently have they risen above the totals of the comparable weeks in 1952. These increases lose much of their significance when you consider the brief steel walkouts in the spring of last year.

Electricity production remains the most favorable of industrial indicators. U. S. electricity output last fall totaled about 7 per cent above the same period, a year earlier. Today, the year-to-year increase has widened to about 12 per cent for the U. S., with an increase of 13 per cent in the central industrial area.

New Peak—Setting a new record, STEEL's industrial production index rose 2 points in the week ended May 2 to 240 per cent of the 1936-1939 average. This is 65 points above the index in the comparable week of 1951, when a brief walkout by steelworkers braked the nation's industrial velocity.

Automotive Output Steady . . .

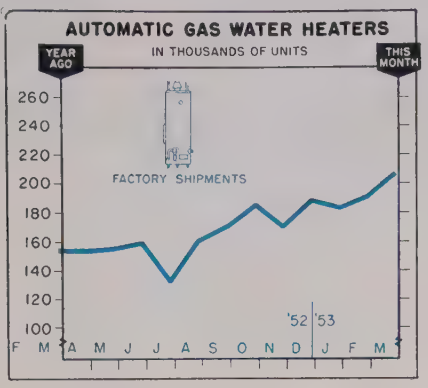
Automotive production in May is expected to roll along in high gear, but whether it will surpass the April output is the big question.

The U. S. passenger car industry now hopes to produce around 614,000 units this month, says *Ward's Automotive Reports*. This scheduled output—although 9000 units over the actual car completions in April—is down 24,000 units from what automakers scheduled for last month. A flurry of strikes or steel shortages in the industry could quickly lower May completions under the 605,000-unit turnout of April.

Truck production, geared more to market demand than steel availability, is slated to decline in May for the third consecutive month. Schedules indicate that about 128,000 U. S. trucks may rumble off assembly lines this month, compared with around 129,000 vehicles in April and 131,424 trucks in March. Truck production in March was the highest in 1953, although well below the record months of 1952 and 1951, each with an output of more than 135,000 vehicles.

Automotive operations so far this year are still towering over the same period in 1952, when controls restricted the number of vehicles produced. Passenger car production in the first four months of 1953 rose 51 per cent over a year earlier to around 2,125,000 assemblies, while truck output in the January-April period increased 10 per cent over the year to about 472,000 units.

Combined U. S. and Canadian

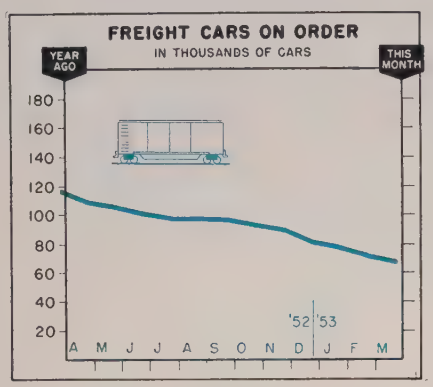


Automatic Gas Water Heaters

Shipments in Units

	1953	1952	1951
Jan.	184,000	148,700	225,600
Feb.	190,900	145,800	213,400
Mar.	206,400	153,300	223,300
Apr.	.....	153,300	199,400
May	.....	155,300	167,400
June	.....	159,000	131,500
July	.....	131,300	102,400
Aug.	.....	161,500	124,400
Sept.	.....	171,200	130,900
Oct.	.....	185,300	148,800
Nov.	.....	167,100	143,400
Dec.	.....	178,600	127,200
Total	.....	1,910,400	1,937,700

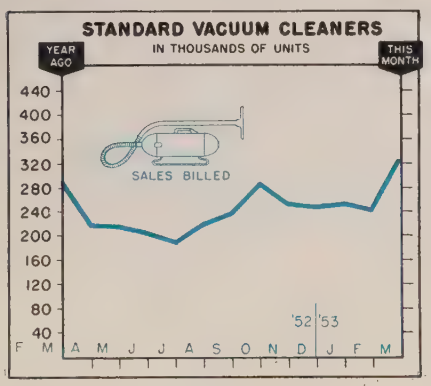
Gas Appliance Mfrs. Assn.



Freight Car Awards and Backlogs

	Awards		Backlogs*	
	1953	1952	1953	1952
Jan.	5,536	5,338	77,414	120,251
Feb.	2,284	7,358	71,883	118,900
Mar.	3,379	5,619	68,563	115,854
Apr.	....	397	.....	108,270
May	....	2,502	.....	103,910
June	....	3,264	.....	99,615
July	....	1,536	.....	95,265
Aug.	....	4,558	.....	95,761
Sept.	....	3,628	.....	95,377
Oct.	....	1,423	.....	90,708
Nov.	....	2,878	.....	87,657
Dec.	....	1,159	.....	80,296
Total	....	37,261		

* End of month.
American Railway Car Institute

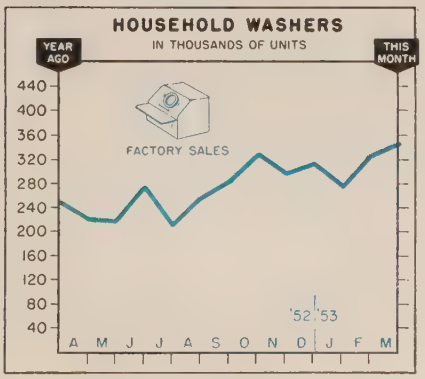


Standard Vacuum Cleaners

Sales Billed—Units

	1953	1952	1951
Jan.	255,886	223,357	282,305
Feb.	246,007	230,226	261,572
Mar.	329,294	290,092	290,242
Apr.	.....	217,169	227,216
May	.....	216,969	201,983
June	.....	206,939	194,548
July	.....	188,715	161,002
Aug.	.....	222,413	191,299
Sept.	.....	237,541	210,086
Oct.	.....	292,474	259,469
Nov.	.....	254,297	219,919
Dec.	.....	249,032	230,263
Total	.....	2,841,803	2,729,104

Vacuum Cleaner Mfrs. Assn.



Household Washers

Sales Billed—Units

	1953	1952	1951
Jan.	277,309	213,998	321,092
Feb.	326,604	255,864	341,328
Mar.	345,989	248,431	368,455
Apr.	.....	217,211	292,193
May	.....	213,668	253,942
June	.....	274,457	253,119
July	.....	207,593	139,799
Aug.	.....	254,537	239,081
Sept.	.....	283,732	313,756
Oct.	.....	327,814	297,210
Nov.	.....	293,079	262,484
Dec.	.....	310,661	218,664
Totals	.....	3,101,045	3,301,123

American Home Laundry Mfrs. Assn.

Charts Copyright 1953 STEEL

Issue Dates on other FACTS and FIGURES Published by STEEL

Construction .....Apr. 6	Radio, TV .....Apr. 13	Gray Iron Castings..Apr. 20
Durable Goods ....May 4	Ranges, Elec. ....Apr. 13	Indus. Production..Apr. 27
Employ., Metalwk..May 4	Ranges, Gas .....Mar. 30	Ironers .....Apr. 13
Employ., Steel ....Apr. 6	Refrigerators .....Feb. 2	Machine Tools ....Apr. 27
Fab. Struc. Steel..Mar. 30	Steel Castings ....Apr. 20	Malleable Castings..Apr. 20
Foundry Equip. ...Apr. 27	Steel Forgings ....Apr. 20	Pumps .....Apr. 6
Furnaces, Indus. ..Apr. 6	Steel Shipments ...May 4	Prices, Consumer ..May 4
Gear Sales .....Mar. 9	Wages, Metalwk. ..Apr.27	Prices, Wholesale..Apr. 13

output in the week ended May 2 totaled 187,216 passenger cars and trucks, down 7394 units from the previous week but considerably above the 128,402 cars and trucks produced in the week ended May 3, 1952.

Estimated by STEEL for the week ended May 9: 185,000 passenger cars and trucks.

Steel Production Weighty . . .

As automakers and other consumers press for deliveries, steel production in the U. S. remains heavy. The American Iron & Steel Institute estimates output in the week ended May 9 at 2,262,000 net tons of steel for ingots and castings, the same as the actual output of the previous week.

Structurals Orders Edge Up . . .

Mirroring the improvement in construction contracts, the American Institute of Steel Construction says that bookings for fabricated structural steel in the first quarter rose 5 per cent over the comparable period of 1952 to 706,308 tons. Shipments in the first quarter amounted to 758,866 tons, compared with 760,185 tons in the opening quarter, last year.

With shipments outpacing new orders, the industry's supply of unfilled orders is moving downward, however. On Apr. 1, backlogs for structurals had declined 14 per cent over the year to a total of 2,155,047 tons, with 48 per cent scheduled for production before Aug. 1.

Radio, TV Sales Jump . . .

Production of radio and TV sets is continuing to soar aloft on the carrier waves of high consumer demand.

Radio-Television Manufacturers Association says that radio production in the first quarter totaled 3,834,784 units, nearly 65 per cent above the comparable 1952 period when consumer demand was somewhat apathetic. Radio output in March was 59 per cent over the same month, a year earlier.

Makers of TV sets are finding demand even more insistent as new sending stations are placed into operation in many areas of the U. S. Production of TV sets in the

BAROMETERS OF BUSINESS

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
INDUSTRY			
Steel Ingot Output (per cent of capacity)[2]	100.5	99.5	53.0
Electric Power Distributed (million kwhr)	7,939	8,016	6,949
Bituminous Coal Output (daily av.—1000 tons)	1,510	1,450	1,625
Petroleum Production (daily av.—1000 bbl)	6,268[1]	6,278	6,296
Construction Volume (ENR—millions)	$373.1	$288.0	$288.2
Automobile, Truck Output (Ward's—units)	187,216	194,610	128,402
TRADE			
Freight Car Loadings (unit—1000 cars)	800[1]	780	745
Business Failures (Dun & Bradstreet, number)	148[1]	159	150
Currency in Circulation (millions)[3]	$29,787	$29,722	$28,460
Dept. Store Sales (changes from year ago)[3]	−1%	+8%	−2%
FINANCE			
Bank Clearings (Dun & Bradstreet, millions)	$17,285	$18,391	$17,062
Federal Gross Debt (billions)	$264.6	$264.3	$258.3
Bond Volume, NYSE (millions)	$17.2	$20.4	$14.2
Stocks Sales, NYSE (thousands of shares)	6,376	7,863	6,325
Loans and Investments (billions)[4]	$76.4	$76.9	$73.1
United States Gov't. Obligations Held (billions)[4]	$53.9	$53.5	$52.2
PRICES			
STEEL's Weighted Finished Steel Price Index[5]	181.31	181.31	171.92
STEEL's Nonferrous Metal Price Index[6]	221.1	222.7	243.6
All Commodities[7]	110.0	109.7	112.3
All Commodities Other Than Farm and Foods[7]	113.3	113.2	113.8

*Dates on request. [1]Preliminary. [2]Weekly capacities, net tons: 1953, 2,254,459; 1952, 2,077,040. [3]Federal Reserve Board. [4]Member banks, Federal Reserve System. [5]1935-1939=100. [6]1936-1939=100. [7]Bureau of Labor Statistics Index, 1947-1949=100.

first quarter amounted to 2,259,943 units, a jump of 80 per cent over the comparable 1952 period. March production was 58 per cent greater than that of March, 1952.

New Firms Aplenty . . .

More new businesses opened their doors for the first time in March than in any previous month since 1948. New incorporations in March totaled 9635 firms, up 21 per cent from March, 1952, and made the greatest monthly total since January, 1948, with 11,000 firms says Dun & Bradstreet Inc.

Stock companies chartered in the first quarter rose 15 per cent to 27,046 new firms, the highest first quarter since 1948 with a total of 28,219 business enterprises.

Family Wealth Soars . . .

Critics of life in a capitalistic socitey will receive a jolt if they study the rise in consumer wealth.

Consumer wealth in the U. S. increased more than 50 per cent since World War II, says a report of the National Industrial Conference Board. Consumer's asset holdings (cash, insurance, homes, business interests, etc.) are now in excess of $800 billion, with offsetting debts of about $100 billion.

The board found that more than 50 per cent of U. S. families now have a net worth of $7500 or more. About 17 per cent of all families own more than $30,000 in net assets, and fewer than 10 per cent of U. S. families have more debts than assets. Families which earn under $5000 per year, or 80 per cent of all families, own nearly 50 per cent of the nation's wealth.

Retail Sales Improve . . .

Retailers are ringing up a far greater dollar volume than they did a year ago, and sales of durables are taking star billing in the mercantile drama. The Commerce department's Office of Business Economics says that sales of all retail stores in March amounted to $13.9 billion, about 9 per cent over March, 1952. Sales of stores devoted to durable goods jumped 21 per cent to $5.2 billion. Automotive sales rose 34 per cent over the year to $2.9 billion in March.

Trends Fore and Aft . . .

Production of crude oil is declining about 3 per cent under a year ago. . . Business failures, after rising over the same weeks of last year in February and March, are now back under the comparable weeks in 1952. . . Shipments of steel forgings in February rose 6 per cent over February, 1952.



Which kind of Cold Rolled Strip Steel is best for You ?

CONSIDER SHEET COIL

—if variations in physical characteristics are permissible.
—if fairly heavy oversize gauge variations are not objectionable.
—if the fabricating operations are not too complicated and do not require intricate expensive dies.
—if a fine surface finish is not essential.
—if a good base for paint or enamel is desired.
—if you do not object to some "square footage" loss due to oversize variation.
—then Sheet Coil will probably be the most economical material for the job.

CONSIDER THINSTEEL

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—if you wish to keep die wear low, no oversize gauge variations.
—if you require a fine finish or a better base for plating.
—if you want maximum yield for "most finished parts per ton."
—if you want selected tempers for maximum strength and lightest weight.
—then you'll find Thinsteel the most economical material by far.



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... TONGS FOR EVERY GRABBING PROBLEM

Men of Industry



JOHN W. ANNE
. . a v. p. of Elliott Co.



ALTON G. WENTWORTH
. . . heads Seymour Mfg.



CLYDE H. REEME
. . . Udylite president

John W. Anne was elected a vice president, **Elliott Co.**, Jeannette, Pa. Since 1948 he has been sales manager, Jeannette Division. **S. W. Crisman** becomes assistant district manager of the Pittsburgh office.

Roger O. Bay was appointed sales manager, tool division, **Bonney Forge & Tool Works**, Allentown, Pa., subsidiary of Miller Mfg. Co. He formerly was sales manager, automotive division, Cleveland Pneumatic Tool Co.

Alloy Steel & Metals Co., Los Angeles, appointed **P. R. Francis** president to succeed the late **N. K. Anderson.**

Robert W. Jones was elected vice president and general manager, **Trans-Main Corp.**, Kent, O. He is in charge of all company operations.

Emory F. Patterson joined the executive sales staff, **Luria Engineering Co.**, New York. Since 1931 he has been with Great Lakes Steel Corp., for the last five years eastern division manager, Stran-Steel Division.

Lysle B. McKinley was elected vice president in charge of scientific instrument sales, and **Carl A. Day** as vice president-manufacturing, **Bausch & Lomb Optical Co.**, Rochester, N. Y.

Alton G. Wentworth was elected president, **Seymour Mfg. Co.**, Seymour, Conn. He succeeds **Arthur C. Wheeler** who resigned in February. Mr. Wentworth has been with the company for approximately 37 years and since 1948 has been executive vice president. **William O. Bennett** succeeds **Fred G. Space**, retired, as purchasing agent.

Charles E. Finn is district sales manager of **Oliver Iron & Steel Corp.'s** newly formed Berry Division, midwestern sales office, Chicago.

Roger Vaughn was elected executive vice president, **Consolidated Machine Tool Corp.**, Rochester, N. Y.

John G. Murray and **Peter P. Wojtul** were elected vice presidents of **Continental Can Co.**, New York. Mr. Murray, formerly general manager, Bond Crown & Cork Co., subsidiary, continues to head the company's operations in that field, with headquarters in Wilmington, Del. Mr. Wojtul, named director of sales last January, will be in charge of sales for all product divisions.

James F. Corcoran was made assistant vice president in charge of manufacturing of **Dollinger Corp.**, Rochester, N. Y.

Clyde H. Reeme becomes president of **Udylite Corp.**, Detroit. Vice president and treasurer since 1938, he now succeeds **L. K. Lindahl**, who relinquishes his duties as president to devote full time as chairman of the board. **Lawrence V. Nagle**, vice president and general sales manager, was made executive vice president, and **Arthur L. Barak** was named treasurer.

H. C. Yaeger, who joined **Jacobs Aircraft Engine Co.**, subsidiary, Barium Steel Corp., New York, in 1951 as chief metallurgist, was appointed production manager.

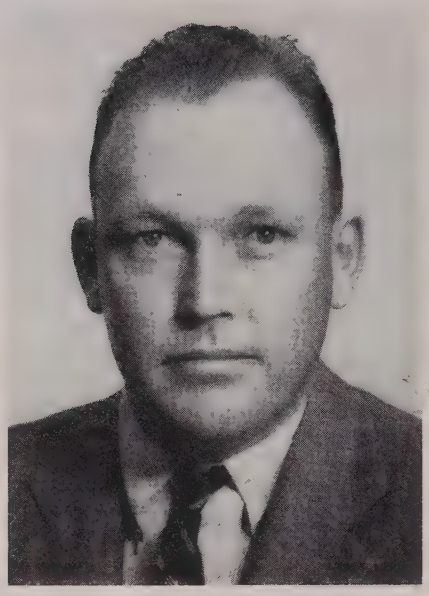
Arthur S. Iberall will direct the newly formed research and development department in the aircraft division in Cleveland of **Aro Equipment Corp.**

American Safety Razor Corp., Brooklyn, N. Y., appointed **Donald D. Mallory** director of engineering and **Wayne M. Biklen** manager of quality control. For the last several years, Mr. Mallory was vice president-engineering at Toledo Scale Co. Mr. Biklen has been quality control manager at W. S. Sheaffer Pen Co.

White Motor Co., Cleveland, named **Edward Gray** assistant to K. A. Roesch, general manager, coach and aircraft division. He will be



WILLIAM BRILL
. . . CF&I engineering director



ROBERT T. FRISBIE JR.
. . . New Britain Machine v. p.



JOHN W. CRAIG
. . . heads Aluminum Industries Inc.

in charge of the division's production. **J. A. Kiggen Jr.** was appointed export manager with headquarters in New York.

William Brill was made director of engineering, **Colorado Fuel & Iron Corp.**, Pueblo, Colo. He has served as chief engineer for the Pueblo CF&I plant since Feb. 1, 1950.

E. W. Bliss Co., Canton, O., announces the election of three new vice presidents as follows: **Richard Y. Moss** vice president and manager, Canton, O., division; **Robert Shannon,** vice president and manager, Hastings, Mich., division; and **Albert E. Whyman,** who was made vice president in charge of European operations.

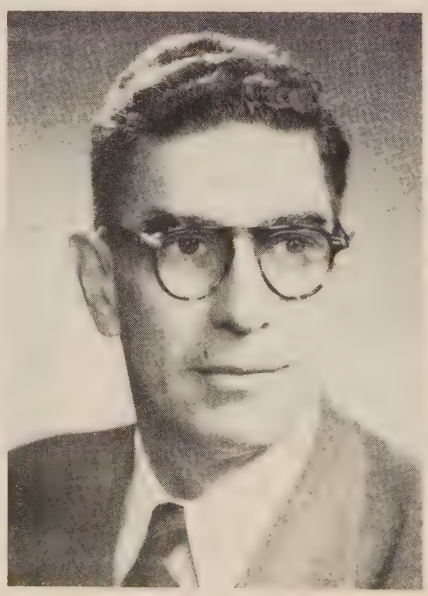
American Machine & Foundry Co.'s Leland Electric Division, Dayton, O., elected **Robert S. Sweeney** divisional vice president and general manager and **Rex D. Marsh** sales manager. Mr. Sweeney was formerly vice president-treasurer, Watson-Stillman Co., and Mr. Marsh was president and a director of Bowser Inc., AMF's Canadian subsidiary.

At **Acme Steel Co.**, Chicago, **Marsh B. Hall was** appointed chief engineer and **Willard S. Collins** as assistant chief engineer, development and research engineering department, for the Archer avenue plant in Chicago. Mr. Hall replaces **James N. Wognum,** recently named chief engineer of Acme's newly created engineering research laboratory.

New Britain Machine Co., New Britain, Conn., elected **Robert T. Frisbie Jr.** vice president. He has been sales manager, machine tool division, for the last four years.

R. A. Langer was elected president, **American Metal Market Co.**, New York. He succeeds the late **S. P. Trench.** Associated with the organization since 1909, Mr. Langer was vice president since 1945.

Joy Mfg. Co., Pittsburgh, elected **John Lawrence** as vice president, engineering and manufacturing. He joined the company in 1951 as vice president-manufacturing, and now assumes the additional engineering responsibilities formerly exercised by **Dr. T. H. Troller,** resigned.



JOHN LAWRENCE
. . . Joy Mfg. v. p.

John W. Craig is now president and chief executive officer of **Aluminum Industries Inc.**, Cincinnati. Mr. Craig, who also was elected to the board of directors, will be general manager of the company's two plants in Cincinnati. Immediately before joining Aluminum Industries, he was vice president, Avco Mfg. Corp., and general manager of its Crosley Division. **Ray F. Schwab** was made director of purchases.

John D. Thompson was elected executive vice president, **Henry Disston & Sons Inc.**, Philadelphia.

F. J. Stokes Machine Co. appointed **J. William Robinson** manager of its new Canadian branch in Montreal.

J. B. Ribakoff was named a vice president with offices in **Solar Steel Corp.'s** new plant, 160 Southbridge St., Worcester, Mass.

William W. Taylor was named vice president-manufacturing, **OPW Corp.**, Cincinnati. He was formerly an executive for Cincinnati Milling Machine Co.

In the Lewis Machinery Division, **Blaw-Knox Co.**, Pittsburgh, **William G. Blessing** was made manager of purchases and **R. L. Cramer** divisional purchasing agent, Ordnance department. **C. E. Lewis** became divisional purchasing agent, machinery department.

E. G. Fenton, assistant to the pres-

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THOMAS D. CARTLEDGE
. . . Union Carbide & Carbon v. p.



J. DONALD CLARK
. . . gen. mgr. for Garrett plants



PRESTON C. MITCHELL
. . . Harbison-Walker v. p.

ident since joining **Empire Steel Corp.**, Mansfield, O., in 1951, was made works manager.

Thomas D. Cartledge was elected vice president, **Union Carbide & Carbon Corp.**, New York. He has been president of Linde Air Products Co., a division, since 1952, and also is a director and president of Dominion Oxygen Co. Ltd.

Donald French resigned as a vice president, **Carrier Corp.**, Syracuse, N. Y., and is succeeded by **Walter A. Grant**, director of research, who becomes manager, engineering division.

Firth Sterling Inc., Pittsburgh, appointed **Robert J. Steele** general superintendent, carbide division, and **John D. Knox** superintendent, powdered metals division.

E. C. Koerper was made works manager, **Ampco Metal Inc.**, Milwaukee.

J. Donald Clark was made general manager of plants for **George K. Garrett Co.**, Philadelphia. **George Nessenthaler** will be works manager.

Fred Osborne was elected a vice president, **United States Pipe & Foundry Co.**, Burlington, N. J.

Francis B. Herlihy was appointed chief metallurgist, **American Brake Shoe Co.**, New York. Formerly assistant in the position, he is located at Mahwah, N. J.

Carl M. Beach was elected vice president and director, **Cincinnati Milling & Grinding Machines Inc.**, Cincinnati.

Don G. Mitchell was elected chairman of the board and **H. Ward Zimmer** president of **Sylvania Electric Products Inc.**, New York. **Max F. Balcom**, chairman since 1950, retires after 35 years with the company.

Preston C. Mitchell was elected vice president, **Harbison-Walker Refractories Co.**, Pittsburgh, and **Edward T. Hile** and **Harry H. Yeager** were elected directors.

Lea Mfg. Co., Waterbury, Conn., elected **Earle W. Couch** president and treasurer to succeed **Robert S. Leather**, named chairman of the board. Other officers elected were **R. P. Crane** vice president, **Henry L. Kellner** secretary, **W. D. Starr** assistant treasurer, and **E. T. Candee** assistant secretary.

Tom Stott was appointed vice president, **H. M. Harper Co.**, Morton Grove, Ill. He was made general sales manager in 1950, and continues to serve in that capacity.

Walter C. Smart was elected vice president, **Twin Coach Co.**, Kent, O. For the last year, he has been general sales manager, motor vehicle division, and retains that post.

OBITUARIES...

John U. Anderson, 61, vice president, **Pittsburgh Steel Co.**, Pittsburgh, died of a heart attack Apr. 28 while on a vacation in Florida.

George L. Mitsch, 58, operating manager of foundries with **American Car & Foundry Co.** at St. Louis, died Apr. 29.

Stafford C. Reynolds, 72, a director **Federal-Mogul Corp.**, Detroit, died Apr. 30. He was one of the founders of Federal Bearing & Bushing Corp., a predecessor of Federal-Mogul. At retirement a year ago, he served as senior vice president-treasurer.

Alexander McIntosh, 68, former president, **Faichney Instrument Corp.**, Watertown, N. Y., died in Florida Apr. 29.

R. K. Blanchard, 67, who retired in December as vice president, **Neptune Meter Co.**, New York, died Apr. 25.

W. Averell Brown, who retired last September as secretary, **U. S. Steel Corp.**, New York, died Apr. 29. He served the corporation 35 years.

William R. Teller, 48, director of research-engineering, **Bryant Heater Corp.**, Cleveland, died May 2.

Walton R. Ellmaker, president and founder, **Albany Machine & Tool Works**, Albany, N. Y., died Apr. 26.

DeWitt M. Bull Sr., 64, vice president, **Henry Shenk Co.** and secretary of **Erie Tool Works**, Erie, Pa., died Apr. 25.

Quick-As-Wink Double Solenoid Air Valves on Coil Strapping and Oiling Line.



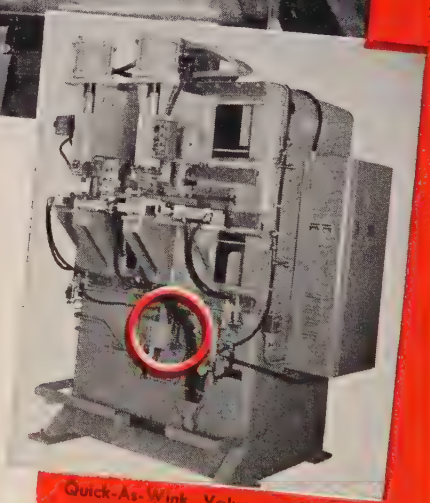
Quick-As-Wink Control Valves

fast, positive dependable action for single or sequence machine movements

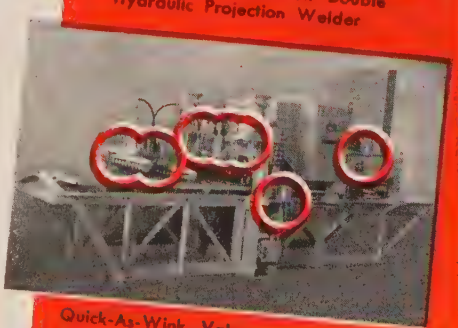
● Whether the machine movements in your plant are of the relatively simple "on-off" variety, or complicated interconnected sequence operations, you will get a maximum of long, efficient service, without break-downs, tie-ups or lost time, by standardizing on Quick-As-Wink Control Valves throughout your plant.

Quick-As-Wink Valves are designed—and built—to maintain highest standards of continuous, trouble-free service. All parts are in pressure balance eliminating any tendency to creep or crawl. There is no metal to metal seating, minimizing wear and reducing maintenance costs. All parts are standardized and readily interchangeable avoiding the delays of returning valves to the factory for servicing, and the expense of maintaining large standby inventories.

Standardize on Quick-As-Wink—and get *all* the advantages that *only* Quick-As-Wink Control Valves can give you.



Quick-As-Wink Valve on Double Hydraulic Projection Welder



Quick-As-Wink Valves on Sequence Operation Multiple Welding Machine

Quick-As-Wink AIR AND HYDRAULIC Control Valves

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Our engineers and metallurgists are experts at designing circular parts and weldments for maximum strength without unnecessary weight. Our long-experienced production specialists can turn those designs into parts of amazing uniformity...at a cost which may show you surprising economies.

Let us quote on your production requirements. We are confident you'll find that, for quality, uniformity and price, you can't beat Cleve-Weld! Write for our general catalog.

CLEVE-WELD

Specialists in

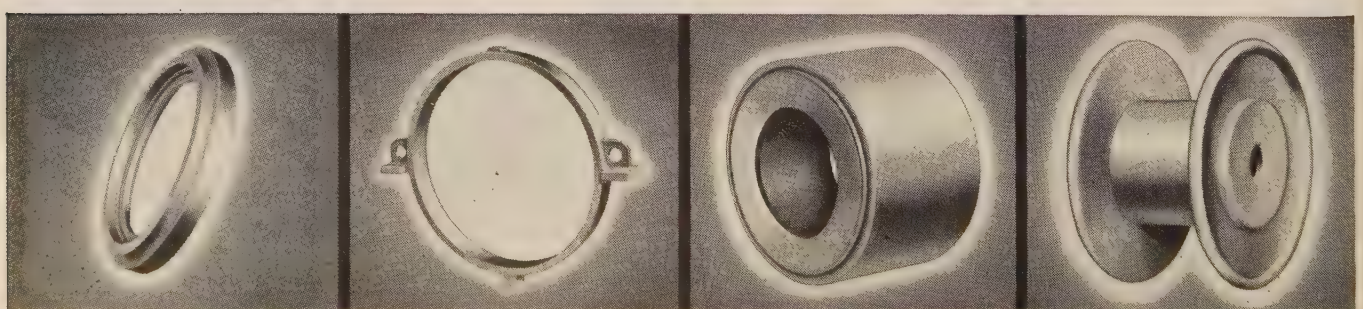
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THE CLEVELAND WELDING COMPANY

West 117th St. and Berea Road, Cleveland 7, Ohio

A Subsidiary of

AMERICAN MACHINE & FOUNDRY COMPANY, New York



Miller Buys Bonney Forge

Acquisition marks further diversification by the Detroit tool producer

ANOTHER step in Miller Mfg. Co.'s program to enlarge and diversify its manufacturing and marketing is acquisition by the Detroit company of Bonney Forge & Tool Works, Allentown, Pa. Miller produces special service tools for the automotive industry.

Bonney Forge & Tool is a manufacturer of mechanics' hand tools, distributed in the automotive, aviation, refrigeration, industrial, hardware, marine and farm equipment markets. In addition to tools, the company also makes welded fittings which are used extensively in the fabrication of pipe lines.

Under Miller ownership, Bonney management will be directed by Joseph W. McDougal, president. Arthur J. Male, former president, will be chairman of the board of directors. Fred S. Durham Jr. will continue as vice president and secretary.

Other Miller subsidiaries are: Monroe Steel Castings Co., Monroe, Mich., a producer of steel and alloy castings; Precision Mfg. Co., West Branch, Mich., engaged in special machining and manufacturing; Buckeye Forging Co., Cleveland, producer of standard and special forgings.

Milne Enlarges Cleveland Branch

A. Milne & Co., New York, nationwide distributor of solid and hollow tool steels, moved into a warehouse at 11110 Avon Ave., Cleveland. The new quarters provide an increase of about 50 per cent in the firm's warehousing facilities in that city.

Builds Annealing Furnace

Eastern Stainless Steel Corp., Baltimore, is erecting a continuous roller-hearth annealing furnace, 120 ft in length and 14 ft wide overall. It will contain 66 hot zone rollers and will be heated by natural gas.

The furnace is expected to improve quality of the sheets and also to increase the plant's production potential. A year ago the company installed an additional electric arc melting furnace which more than doubled its ingot capacity. Melvin C. Harris is vice-president and general manager.



Hangar Door Design Features Opening Speed

Balanced hangar door, developed for the Air Force by Luria Engineering Co., Bethlehem, Pa., opens in 30 seconds. The 5-ton door is elecrically-operated but has an emergency crank that will open it within 90 seconds in event of power failure. It has a steel frame covered by corrugated steel sheets

Enthone Broadens Service

Enthone Inc., New Haven, Conn., is expanding warehousing facilities for its metal finishing chemicals. Distributors who offer this service are R. O. Hull & Co., Cleveland; Ardco Inc., Chicago; and Armalite Co. Ltd., Toronto, Ont.

Gets Control of British Firm

Food Machinery & Chemical Corp., San Jose, Calif., acquired controlling interest in Varley Pumps & Engineering Ltd., Brentford, Middlesex, England, producer of gear-type pumps.

Maryland Drydock Expanding

Maryland Drydock Co., Fairfield, Md., is beginning a major improvement and expansion program. This includes a new building; extension of tower crane tracks some 450 ft to serve a heavy prefabrication area; and construction of new crane runways to assemble material and to service vessels undergoing repairs. George H. French is president.

Sloss-Sheffield Enlarges Office

Construction has started on an addition which will double the capacity of the present office building in Birmingham of the Sloss-Sheffield Steel & Iron Division, U. S. Pipe & Foundry Co. Enlarged quarters are needed because U. S. Pipe & Foundry is moving its headquarters from East Burlington, N. J. to Birmingham.

Brown Heads Acetylene Group

W. A. Brown Jr., president and general manager, Liquid Carbonic Corp., Chicago, was elected president of International Acetylene Association, New York.

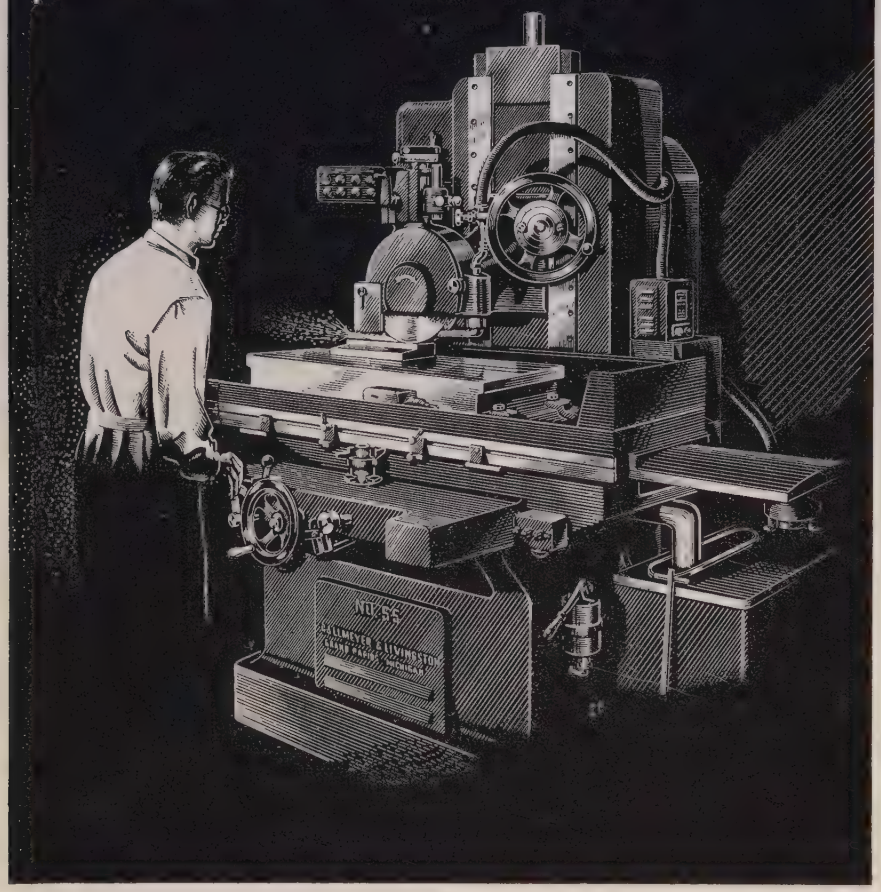
Sandmeyer Moves Warehouse

Sandmeyer Steel Co. moved its warehouse and offices to 2071 Richmond St., Philadelphia.

Stevenson Gets Agency

H. K. Stevenson Inc., Cleveland, was appointed sales representative for northern Ohio, representing Zurn Continental Service Inc., the

precision *beyond question*



The requirements exacted of surface grinding machines leave no room for variation. Precision and tolerance control must be built-in. Through the years Grand Rapids Grinders have demonstrated the highest quality and unquestioned dependability of performance. Upon this record they have been accorded world-wide acceptance as standard of the industry. Here is precision beyond question.

GALLMEYER & LIVINGSTON CO., 307 Straight Ave., Grand Rapids, Mich.

GRAND RAPIDS GRINDERS

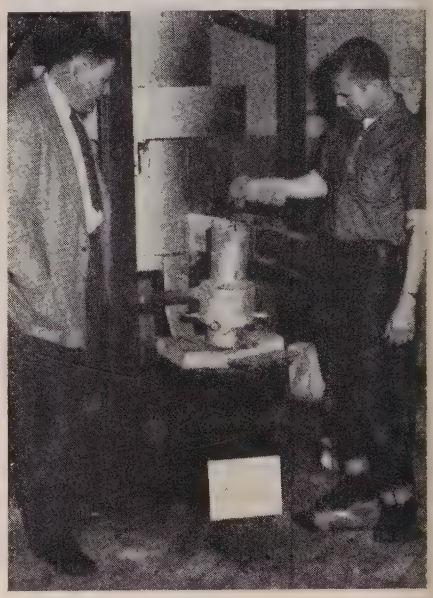
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SURFACE GRINDERS, CUTTER AND TOOL GRINDERS, TAP AND DRILL GRINDERS

GALLMEYER & LIVINGSTON

exclusive sales agent for American Flexible Coupling Co., Erie, Pa.

Baby Cupola Furnace Developed

Engineers at the University of Missouri's School of Mines & Metallurgy, Rolla, Mo., have developed a midget type of cupola furnace capable of melting more than 50 lb of brass and bronze an hour. Experiments have proven that the tiny cupola is practical for use in reclamation of nonferrous metals on a small commercial scale, as well as for use in the engineering and experimental laboratory, and in military operations.



NEA

Dr. Daniel S. Eppelsheimer, professor of metallurgy at the school, is shown, left in the accompanying picture, watching the operation of the ingenious device which he perfected with the aid of Robert Wolf, instructor in foundry at the school. Jack Wheeler, a senior majoring in metallurgy, is operating the furnace.

The "baby" device stands immediately in front of its adult counterpart. The regular cupola furnace in the background is about 50 in. in diameter and stands between 25 and 30 ft high. The "midget," which operates on identical principles, has an internal diameter of 3½ in., over-all height of 18 in.

Expands Canadian Plant

Alsco Products of Canada Ltd. is erecting a $250,000 addition to its plant in Toronto, Ont. The addition will double the production capacity and will give the plant a

FOR RUGGED SERVICE...

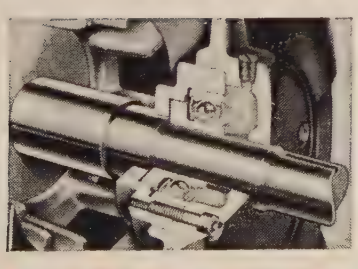
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Precision-Built
MOTORS



Reliance Totally-enclosed Fan-cooled A-c. Motor. All other standard enclosures available, with wide choice of mechanical designs and special mountings. Ratings from 3/4 to 300 hp.

- ☆ Heavy shafts, bearing to bearing
- ☆ Indestructible pressure-cast rotors
- ☆ Shock-resistant frame and bearing-bracket construction



. . . AND THE BEST PRE-LUBRICATED BEARING DESIGN

The Reliance pre-lubricated bearing provides *four times more operating hours without re-lubrication* than any other bearing used in motors today. And—whatever your lubrication schedule—*you just can't grease'em wrong!* To get the complete "inside story" on motor bearings, write today for Bulletin B-2201. It contains hard facts on the advantages of the Reliance pre-lubricated bearing design, with cutaway view, cross-section diagram, comparison chart, and statements by bearing manufacturers. B-1458 J

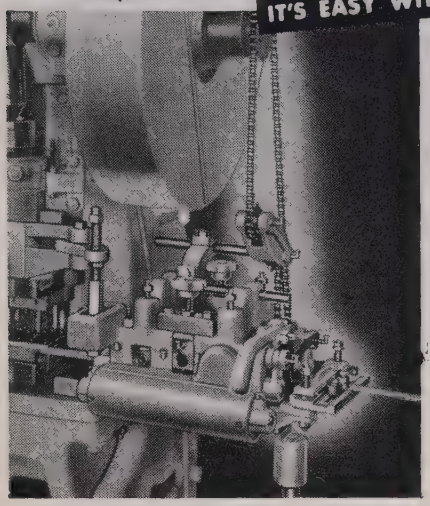
RELIANCE ELECTRIC AND ENGINEERING CO.

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GET RAPID-FIRE PRODUCTION

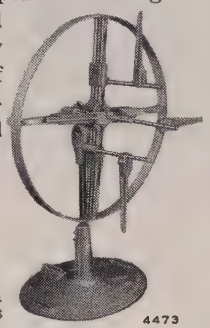
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Automatic Roll Feeds

Wittek automatic roll feeds fit all makes and sizes of punch presses—provide maximum efficiency and extreme accuracy in the high speed automatic feeding of strip stock. Made in single roll, double roll, and compound types with straighteners, in models to feed (push or pull) in any direction. Length of feed is easily adjusted to meet individual requirements.



4473

WITTEK Reel Stands

Simplify Handling of Coiled Stock

Choice of standard models to facilitate handling coiled stock . . . from small, light coils to those weighing up to 800 pounds. Larger reel stands automatically center the coils – provide frictional braking action to prevent overrunning, maintain uniform coil slack.

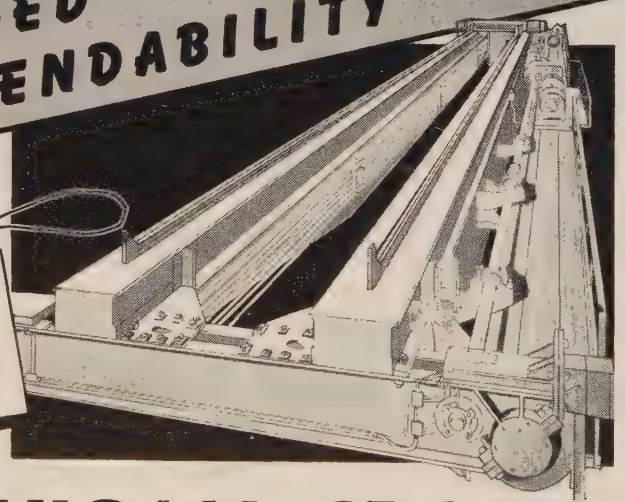
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Automatic ROLL FEEDS AND REEL STANDS WMCo

KNOWN FROM COAST TO COAST FOR CRANES OF RUGGED DEPENDABILITY



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total of 60,000 sq ft of floor space. The firm makes aluminum combination storm windows and doors and other products.

Plans $250,000 Foundry

A $250,000 foundry will be built in Oswego, N. Y., this year by Oberdorfer Foundries Inc., Syracuse, N. Y. It will produce aluminum, zinc and magnesium castings. The plant will be known as the Oswego Castings Co.

From Ricksha to Sports Car

STARR Bros. Bell Co., East Hampton, Conn., is producing the two-toned greeting chime you hear ringing out from more and more convertibles and station wagons these days.

The gong is installed under the car floor, with a plunger near the driver's foot to sound it. The company has been making its Bermuda carriage bell for more than 50 years, reports the New England Council. Up to now it has been used chiefly on the horse-drawn carriages of Bermuda and the rickshas of the Far East.

Will Build Plant in South

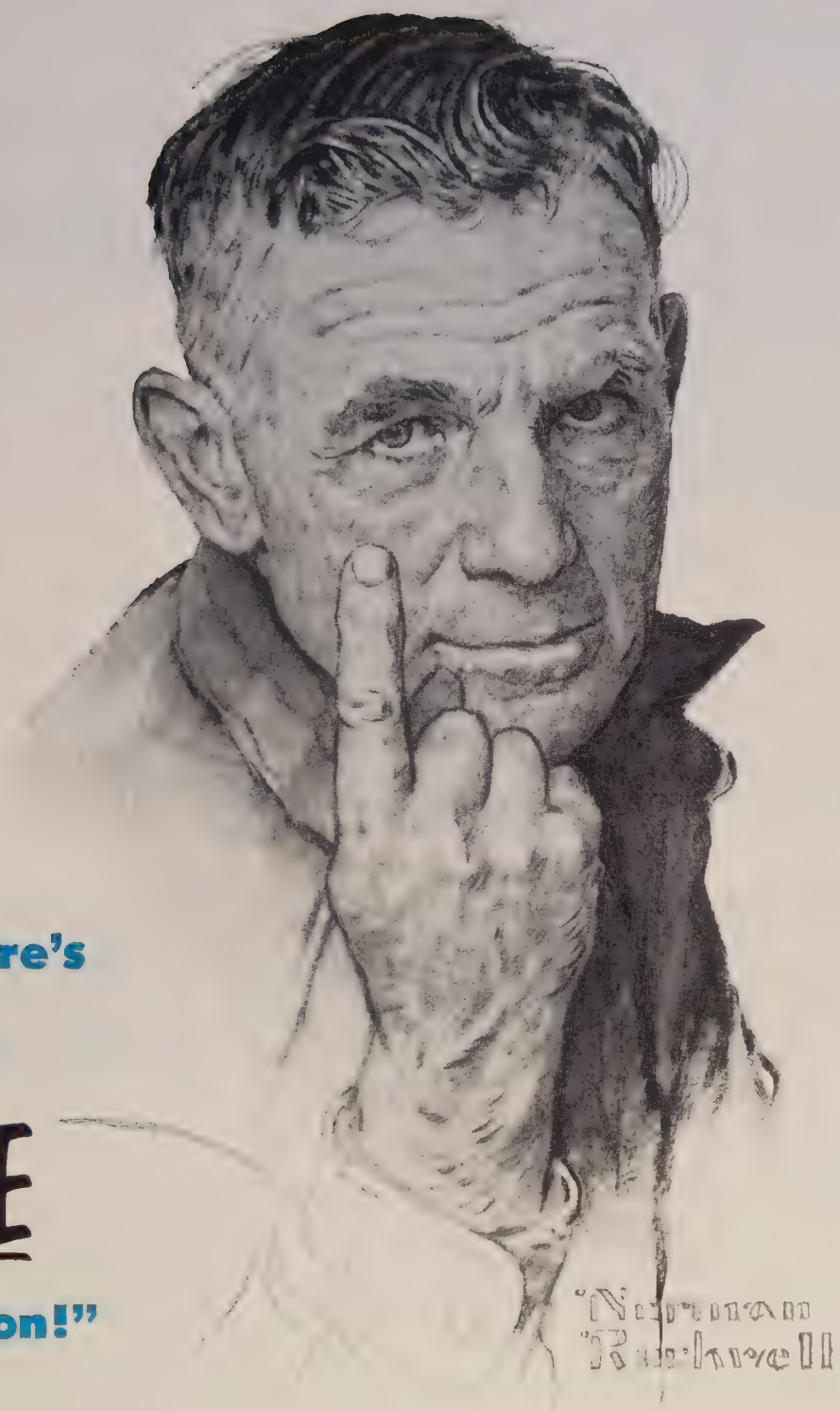
American Bosch Corp., Springfield, Mass., will construct a branch plant at East Columbus, Miss. The firm manufactures automotive and aviation electrical equipment.

Parker Appliance Names Agent

Parker Appliance Co., Cleveland, appointed Globe Machinery & Supply Co., Cedar Rapids, Iowa, as a distributor for its O-rings. The latter company will continue to handle Parker industrial tube fittings and tube working tools.

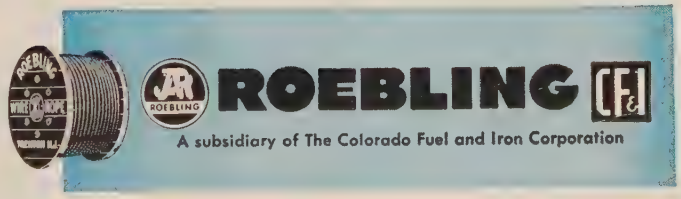
Akron Presform Plans Expansion

Akron Presform Mold Co., Akron, plans to build an addition to its plant in Cuyahoga Falls, O. The company manufactures aluminum forms for latex-dipped products, aluminum and steel molds, dies for rubber and plastics, and



IT'S JUST THAT SIMPLE. There's only one reason in the world why 2 out of 3 wire rope users in the industrial field prefer Roebling wire rope... *it costs a lot less on the job than any other.*

For maximum wire rope efficiency and economy, call your nearest Roebling office for a Field Man. He'll recommend the best ropes for your operations.



JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, TRENTON 2, N. J.

various types of rubber working machinery.

Berkel Products Opens Plant

Berkel Products Co. Ltd. has completed erection of a $120,000 plant in Toronto, Ont. The plant is engaged in the assembly and repair of food processing equipment.

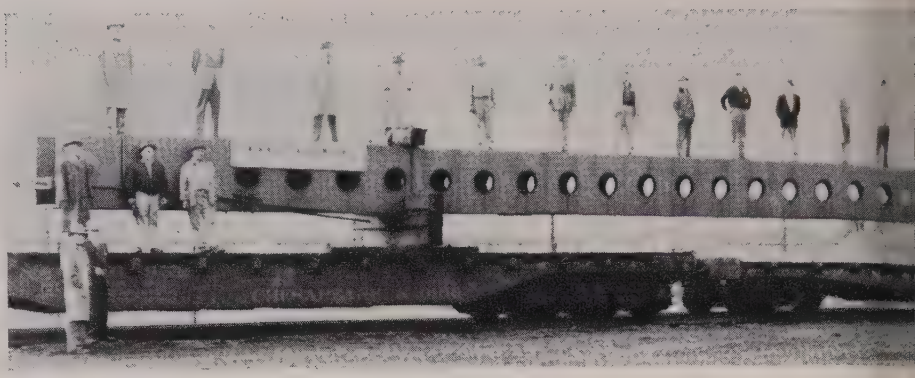
TelAutograph Corp. Buys Firm

TelAutograph Corp., New York, manufacturer of telescriber and communication control systems, purchased Electrotechnic Corp., Azusa, Calif. Electrotechnic, engaged in research and manufacturing of electronic devices, will operate as a wholly-owned subsidiary of TelAutograph.

Jet Aircraft Industry Expands

Airplane manufacturers are expanding their facilities for producing jet-powered craft. Lockheed Aircraft Corp., Burbank, Calif., awarded contracts totaling about $3.2 million for three factory buildings at the Air Force jet center at Palmdale, Calif. Construction is scheduled for completion in about 10 months. Manufacturing and flight facilities at Palmdale will be shared by Lockheed, North American Aviation Inc., Inglewood, Calif., Northrop Aircraft Inc., Hawthorne, Calif.

Douglas Aircraft Co. Inc., Santa Monica, Calif., is entering the jet turbine liner field and has spent more than $1 million on that work.



Stretcher Works in Conjunction with Extrusion Press

The above stretcher-column, fabricated by Lukenweld Division, Lukens Steel Co., Coatesville, Pa., is 138 ft long and weighs 123 tons. This is part of the stretcher that is being erected at Lafayette, Ind., Works of Aluminum Co. of America where a 14,000-ton extrusion press (right) has been built. The stretcher has a rated 3 million pound pull, equal to 38 large diesel loco-

Heat Treating Firm Organized

Production Heat Treating Co., North Hollywood, Calif., was organized to heat treat aluminum at 6845 N. Vineland Ave.

MAY-FRAN

AUTOMATIC SCRAP REMOVAL PAYS OFF!

CHIP-TOTE . . . eliminates machine down-time at THOMPSON PRODUCTS, INC.

Machines produce more when **MAY-FRAN CHIP-TOTES** permit continuous operation. **CHIP-TOTE** automatic scrap conveyors remove borings, turnings and chips from high-production machine tools while they are operating . . . thus eliminating shut-down for manual scrap removal.

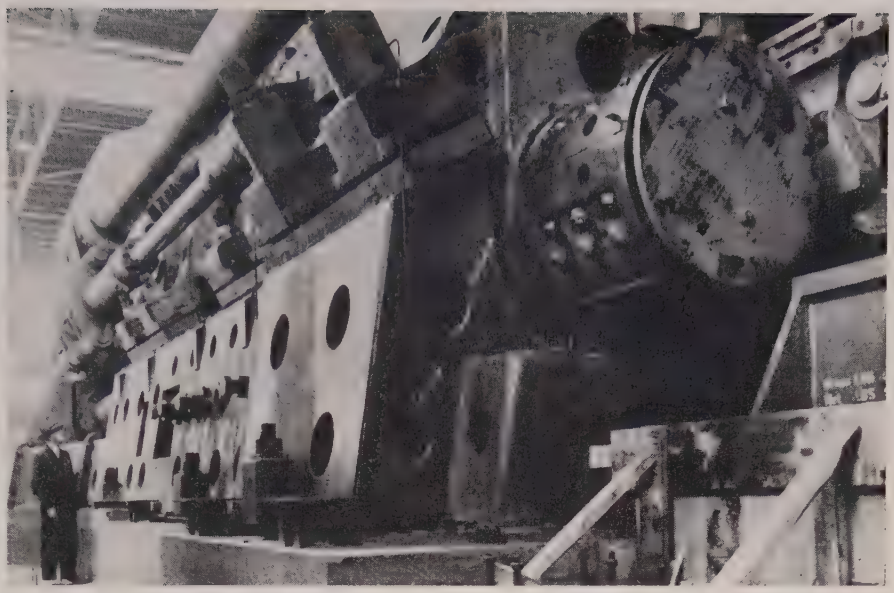
At Thompson Products, Inc., Cleveland Plant, **CHIP-TOTES** speed production by continuously conveying the large volume of chips generated by Sundstrand automatic lathes from machine to tote boxes. Operating speed of the **CHIP-TOTES** is synchronized with metal removing capacity of lathes to assure steady jam-free flow of scrap. In addition, the **CHIP-TOTES** provide for drainage and return of coolant.

MAY-FRAN

ENGINEERING, INCORPORATED

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motives. It is part of auxiliary equipment necessary in operation of presses up to 20,000-ton capacity. Erection of the press was completed in four months by F. H. McGraw & Co., N. Y.

Opens $3 Million Battery Plant

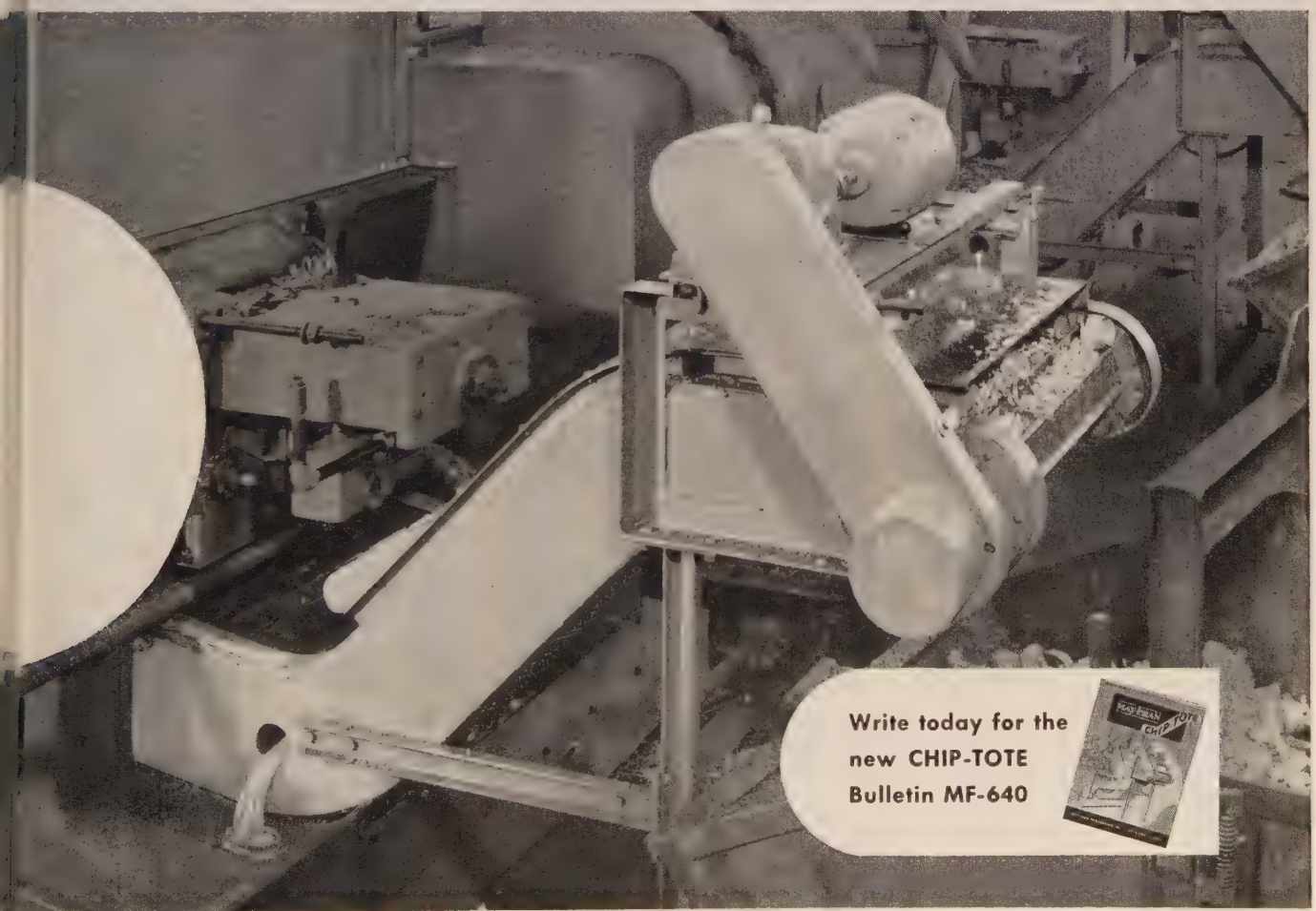
Gould-National Batteries Inc., Trenton, N. J., opened its $3 million plant in Kankakee, Ill. It is the fifth new construction either completed or started since 1951 as part of the company's $7 million postwar expansion and improvement program. Albert H. Daggett, president, said the expansion program will increase the company's production capacity about 20 per cent.

Builds Instrument Factory

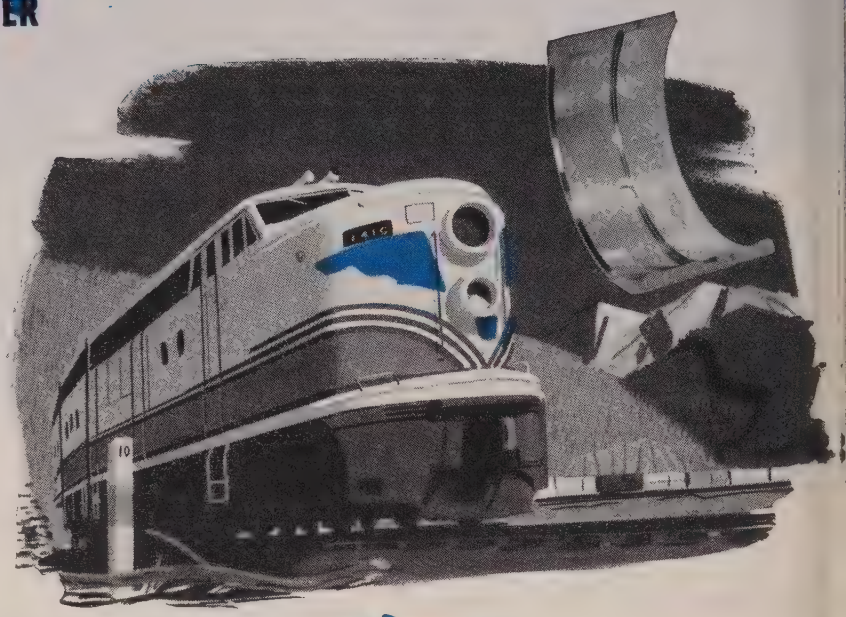
G. M. Giannini & Co., Pasadena, Calif., is constructing a plant for assembly of scientific instruments at 55 North Vernon, in Pasadena.

Alloy Rods Co. Names Agents

Alloy Rods Co., York, Pa., appointed as distributors for its arc welding electrodes: Charles Day Machine Shop, Brownwood, Tex.; Franklin Supply Co., Columbus, O.; G. L. Merriam Co., Greenfield,



ALUMINUM IS Why THESE LOCOMOTIVE ENGINE BEARINGS NOW LAST MANY TIMES LONGER



This is the story of the Fairbanks-Morse 8⅛" Opposed Piston Diesel Engine and solid aluminum bearings.

They saw the possibilities offered by the solid aluminum bearing in their 8⅛" diesel engine after considerable laboratory and field testing in various models of their own engines since 1944.

They standardized on solid aluminum bearings for their main, connecting rod and camshaft bearings in the Opposed Piston Diesel Locomotive Engine for both main line and switcher service. Operating reports show millions of miles of successful operation to date. In fact, railroads are requesting aluminum bearings for this tough service.

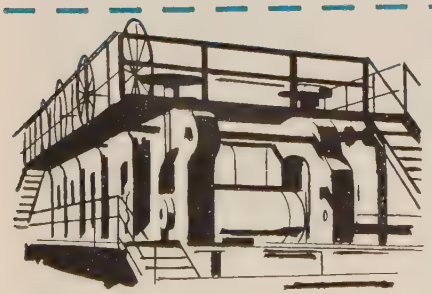
Aluminum bearings give such outstanding performance because they are solid metal all the way through. There are no bonds to fail. Corrosion resistant and no hard backing to score the shaft. No localized hot spots because they dissipate heat far faster than other bearings.

Alcoa Aluminum

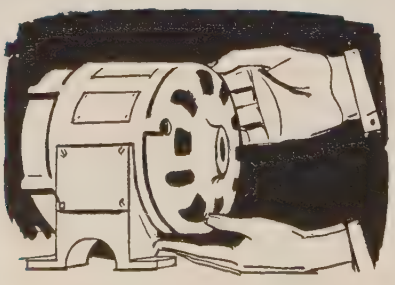
ALUMINUM COMPANY OF AMERICA

ALCOA IS How

To interest users of bearings in aluminum, we had to develop a suitable alloy—one that has good bearing properties, yet can be cast. We had to prove the bearings in thousands of hours of scuff tests, corrosion tests, engine operation on dynamometers, and actual engine field tests. On this firm basis, we became the country's leading producer of aluminum bearing materials. Our stake in the business is to sell sound aluminum castings to bearing finishers and equipment builders, and provide the kind of help in applying them that has made aluminum useful to countless industries. For complete details, call your local Alcoa sales engineer, or write: Aluminum Company of America, 877-E Alcoa Building, Pittsburgh 19, Pennsylvania.



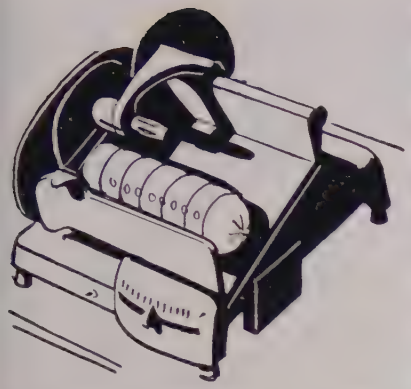
ROLLING MILLS now use aluminum bearings on the roll necks. Under these extreme pressures, aluminum bearings last far longer than those previously used.



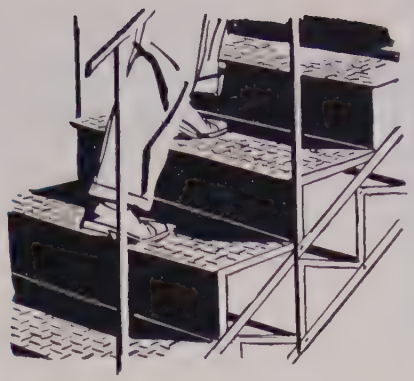
BUSHINGS for electric motors are now cast of Alcoa bearing alloy.



REFRIGERATION and air conditioning equipment is proving a big market for aluminum bearings—because of long life—easy machineability.



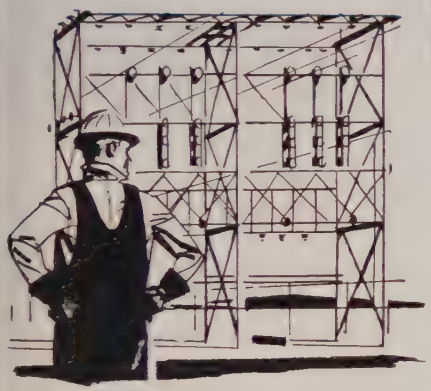
CASTINGS—Aluminum sand and permanent mold castings, like parts for this meat slicer, are strong and sound when Alcoa makes them. They compete in price with castings of any metal when you figure their cost machined, finished and completely assembled.



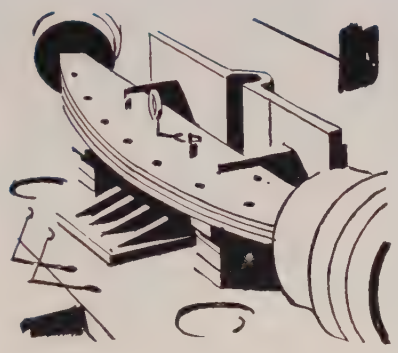
***TREAD PLATE**—Strong Alcoa Aluminum Tread Plate is widely used in refineries and chemical plants because it is nonsparking—in trucks and tractors because it is lightweight.

Products marked* are available from your local Alcoa Distributor listed here

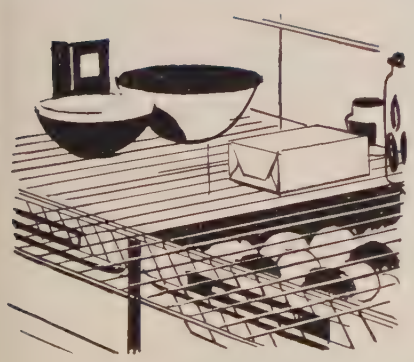




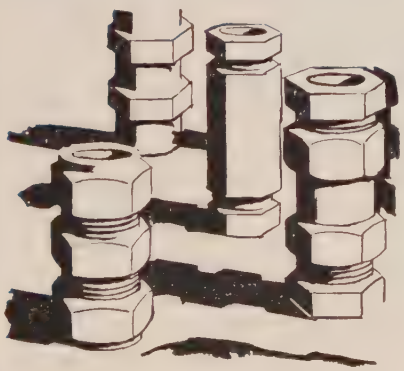
***SUBSTATIONS**—Substations built of lightweight Alcoa Aluminum Structural rolled shapes are quickly fabricated and erected. Aluminum's corrosion resistance eliminates current shutdowns for costly maintenance painting.



***TOOL AND JIG PLATE**—Forming and bending dies for aluminum shapes are economical when made of Alcoa Tool and Jig Plate. It is a cast product. Stress relieved, with close tolerances of flatness and surface smoothness.



***WIRE**—Nonstaining, nontoxic aluminum wire is widely used for refrigerator shelves. Its bright, lustrous appearance lasts for years. You get three times more than other metals—pound for pound.



***SCREW MACHINE STOCK**—Aluminum Screw Machine Stock goes three times further per pound than heavy metals. It machines freely—won't rust—is widely used for fittings and fasteners.

ALABAMA
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Hinkle Supply Co.

CALIFORNIA
Los Angeles
Ducommun Metals & Supply Co.
Pacific Metals Co., Ltd.
San Francisco
Pacific Metals Co., Ltd.

COLORADO
Denver
Metal Goods Corp.

CONNECTICUT
Milford
Edgcomb Steel of New England, Inc.

FLORIDA
Hialeah
Florida Metals, Inc.
Jacksonville
Florida Metals, Inc.
Tampa
Florida Metals, Inc.

GEORGIA
Atlanta
J. M. Tull Metal & Supply Co., Inc.

ILLINOIS
Chicago
Central Steel & Wire Co.
Steel Sales Corp.

LOUISIANA
New Orleans
Metal Goods Corp.

MARYLAND
Baltimore
Whitehead Metal Products Co., Inc.

MASSACHUSETTS
Boston
Edgcomb Steel of New England, Inc.
Cambridge
Whitehead Metal Products Co., Inc.

MICHIGAN
Detroit
Central Steel & Wire Co.
Steel Sales Corp.

MINNESOTA
Minneapolis
Steel Sales Co. of Minn.

MISSOURI
Kansas City
Metal Goods Corp.
St. Louis
Metal Goods Corp.

NEW JERSEY
Harrison
Whitehead Metal Products Co., Inc.

NEW YORK
Buffalo
Brace-Mueller-Huntley, Inc.
Whitehead Metal Products Co., Inc.
New York
Whitehead Metal Products Co., Inc.
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Brace-Mueller-Huntley, Inc.
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Brace-Mueller-Huntley, Inc.
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Cincinnati
Williams & Co., Inc.
Cleveland
Williams & Co., Inc.
Columbus
Williams & Co., Inc.
Toledo
Williams & Co., Inc.

OKLAHOMA
Tulsa
Metal Goods Corp.

OREGON
Portland
Pacific Metal Co.

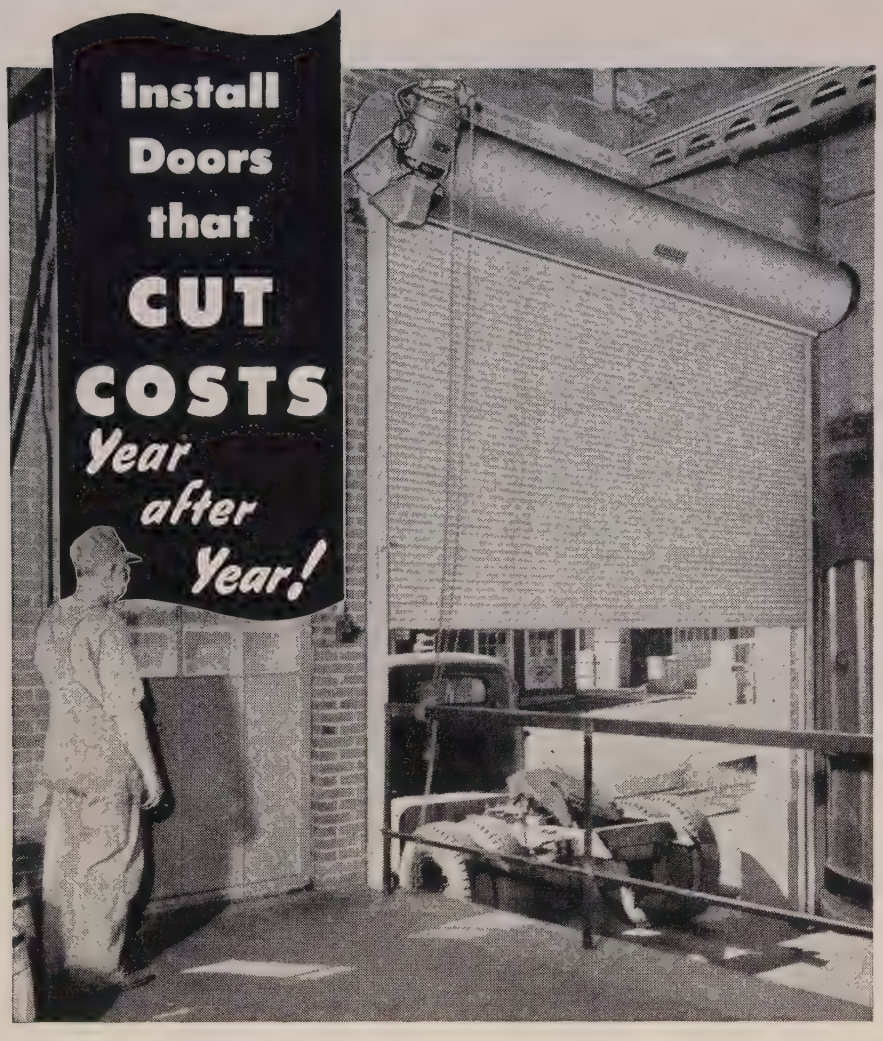
PENNSYLVANIA
Philadelphia
Edgcomb Steel Co.
Whitehead Metal Products Co., Inc.
Pittsburgh
Williams & Co., Inc.

TEXAS
Dallas
Metal Goods Corp.
Houston
Metal Goods Corp.

UTAH
Salt Lake City
Pacific Metals Co., Ltd.

WASHINGTON
Seattle
Pacific Metal Co.

WISCONSIN
Milwaukee
Central Steel and Wire Co.
Steel Sales Corp.



KINNEAR Metal Rolling Doors

Reducing *door costs* is not the only gain you make when you install Kinnear Rolling Doors. You also help cut other plant costs, in many ways.

Coiling upward action permits full use of all floor and wall space around openings, at all times. You can stack materials within an inch or two of the door, inside or outside—*or on both sides*—without impeding its action. This promotes more efficient handling of door traffic, deliveries, and shipments.

The smooth, easy action of Kinnear Rolling Doors saves time and labor—and no other type of door is so well adapted to the extra advantages of motor operation. With pushbutton controls at any desired number of convenient points, the door can be raised or lowered quickly at a second's notice.

As a result, they are consistently closed more quickly after being opened, which brings important reductions in heating and air-conditioning costs.

When opened, the doors remain completely out of the way, safe from damage by wind or vehicles. When closed, their rugged all-metal interlocking-slat curtain assures extra protection against fire, intrusion, wind and weather.

Kinnear Rolling Doors are built in any size, to meet the particular specifications of each opening, in old or new buildings. Motor or manual control. Write for full information.



With this rugged Kinnear Motor Operator, doors can be opened or closed from any number of convenient push-button controls.



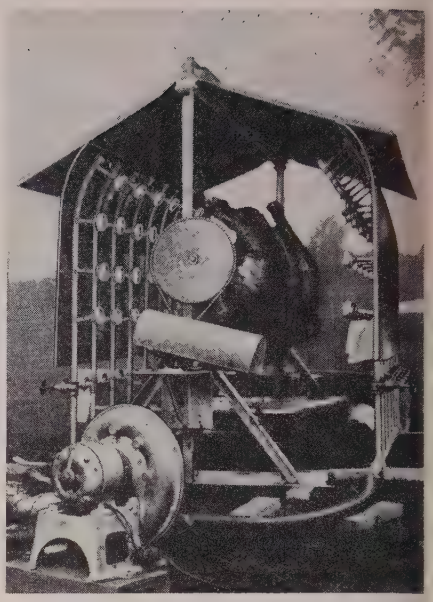
Saving Ways in Doorways

KINNEAR ROLLING DOORS

Offices and Agents in All Principal Cities

THE KINNEAR MANUFACTURING CO.

Factories: 1780-1800 Fields Ave., Columbus 16, O.
1742 Yosemite Ave., San Francisco 24, California



Radiant Heat Roasts Ox

Infra-red radiant burners, standard heating element in ovens produced by Burdett Mfg. Co., Chicago, are used to distribute heat evenly over the 450-lb ox. Barbecuing time averages less than three minutes per pound

Mass.; Auto Battery & Electric Co., New London, Conn.; County Welding Products Corp., New Rochelle, N. Y.; Bob & Bill Welding Service, Plainview, Tex.

Bridgeport Opens Warehouse

Bridgeport Brass Co., Bridgeport, Conn., opened a warehouse at 2209 S. Floyd St., Louisville. Chester M. Adams is the company's general sales manager.

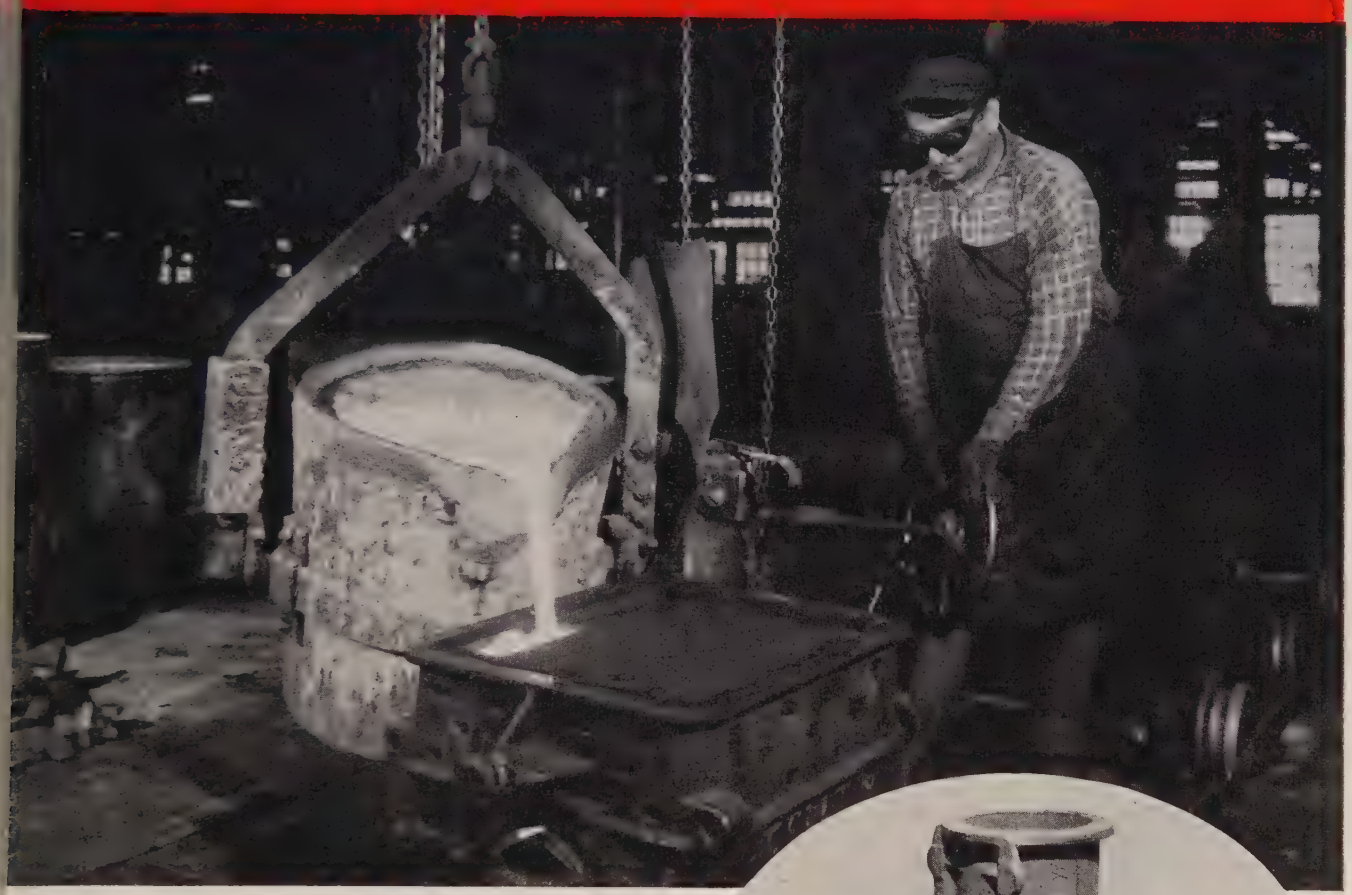
Topper Equipment Co. Moves

Topper Equipment Co. moved into its new manufacturing plant at Rahway, N. J. The company makes vapor degreasing equipment, metal parts washers, dryers, solvent recovery stills, steam cleaners and solvents.

Scully-Jones Names Distributors

Scully-Jones & Co., Chicago, manufacturer of precision holding tools, appointed as stocking distributors: Shop Supply Co., Birmingham; W. C. Chapman & Sons, Baltimore, and Dayton Supply & Tool Co., Dayton, O. Products made by Scully-Jones include drill and tap chucks, floating holders, adjustable adapters, recessing tools, quick-change chucks and standard milling machine arbors.

Westinghouse Air Brake uses Neville Pig Iron for Uniform Quality





ONLY the best materials can be used in making the products for the nation's busy railroads. For many years, the Westinghouse Air Brake Company has employed Neville Pig Iron in its complex air brake castings. We'll be glad to discuss *your* pig iron requirements . . . today, or at your convenience.



NEVILLE

Quality Pig Iron for the Foundry Trade

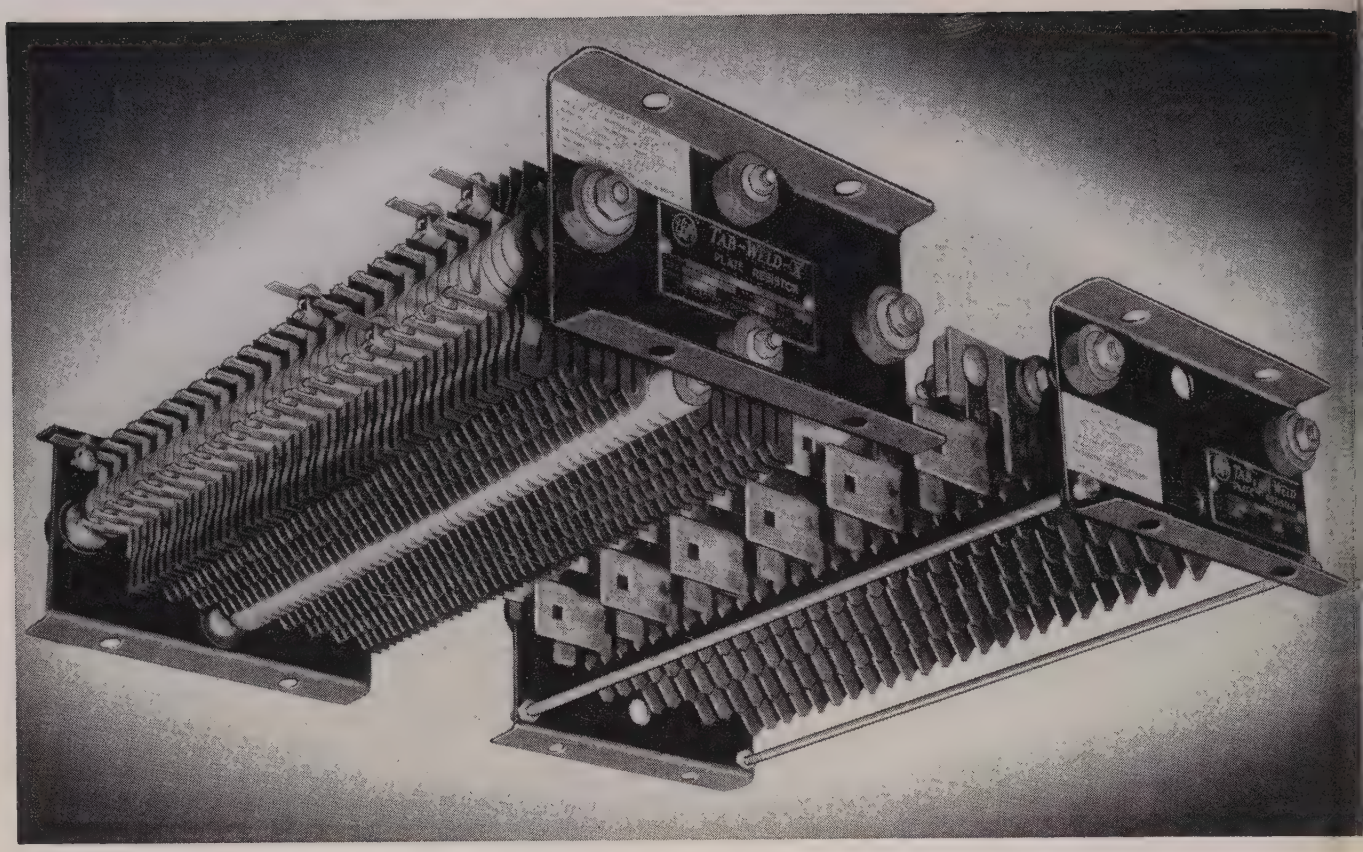
W&D 4692

PIG IRON DIVISION

PITTSBURGH COKE & CHEMICAL CO.

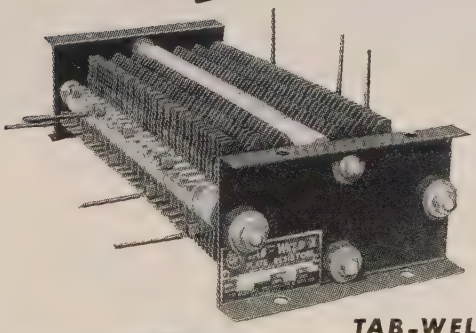
Grant Building • Pittsburgh 19, Pa.

COAL CHEMICALS • AGRICULTURAL CHEMICALS • FINE CHEMICALS • PROTECTIVE COATINGS • PLASTICIZERS • ACTIVATED CARBON • COKE • CEMENT • PIG IRON

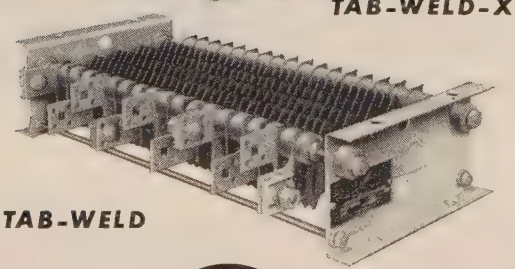


LOOK UP TO TAB-WELD PLATE Resistors

for less preventive-maintenance and lower upkeep-costs



TAB-WELD-X



TAB-WELD

From any angle, you can see the inherent features of EC&M TAB-WELD Plate Resistors. First bolted—then WELDED, these resistors are designed to help you cut corners on maintenance.

No burning at grid-eyes or at tap-plates. No periodic tightening of end-clamping nuts—welding insures a continuous current path — stabilizes the OHMIC value, independent of end-clamping pressure.

Along the sides, out of the path of the rising heat, are many convenient tap-plates which simplify tap-shifting—make on-the-job connections easy, and readily permit small adjustments in resistance-value. Sections may be used directly "off-the-store-room shelf"—no shop alterations are needed.

Remember too, these alloy-steel resistors are corrosion-resisting—and have negligible resistance-change between cold and maximum working temperatures.

Specify Bulletin 942 TAB-WELD Resistors

THE ELECTRIC CONTROLLER & MFG. CO.

2698 EAST 79TH STREET • CLEVELAND 4, OHIO

Production and Engineering
NEWS AT A GLANCE

QUIET ON THE CURVES—All the squealing you hear when a switcher locomotive pulls a string of cars around the mill represents wheel flange wear . . . as well as a spine-tingling. But a unique application of graphite dreamed up by National Carbon engineers seems destined to end both squeals and wear. Specially cored rods of graphite, mounted in sturdy, easily fabricated holders attached to the journal box, are spring-held against wheel flanges. This lubricates them and does a positive job of reducing maintenance costs and increasing locomotive availability. Users report that the system pays off even on the roughest of yard lines.

COSTLY MOVES—With the passing of cheap unskilled labor most companies began to realize the high cost of moving material in their plants. Two approaches to the problem yield worthwhile results. The first and most desirable method is to eliminate the handling operation altogether by changing the product or process. The second, and more often used way, is to move material in a more efficient manner. The science of moving materials is relatively new and growing rapidly as proved by the increasing interest in the Materials Handling Show and companion conference program. Experts in the field will be available in Philadelphia next week to provide better understanding of handling theories and to demonstrate the equipment capable of solving specific application problems. p. 116

RUTILE REPLACEMENT—About 70 per cent of the welding rod coating and half the titanium metal produced in the U.S. is made with rutile but only 7500 tons of the 25,000 tons required are domestically produced. To help lick this problem the Defense Materials Procurement Agency has completed arrangements with National Lead Co. to determine the feasibility of using domestic brookite for these end uses. Brookite, like rutile, is a natural dioxide of titanium. While the two materials differ in crystal structure their theoretical composition is identical, leading to the belief that they can be used interchangeably, provided the brookite can be economically concentrated and purified.

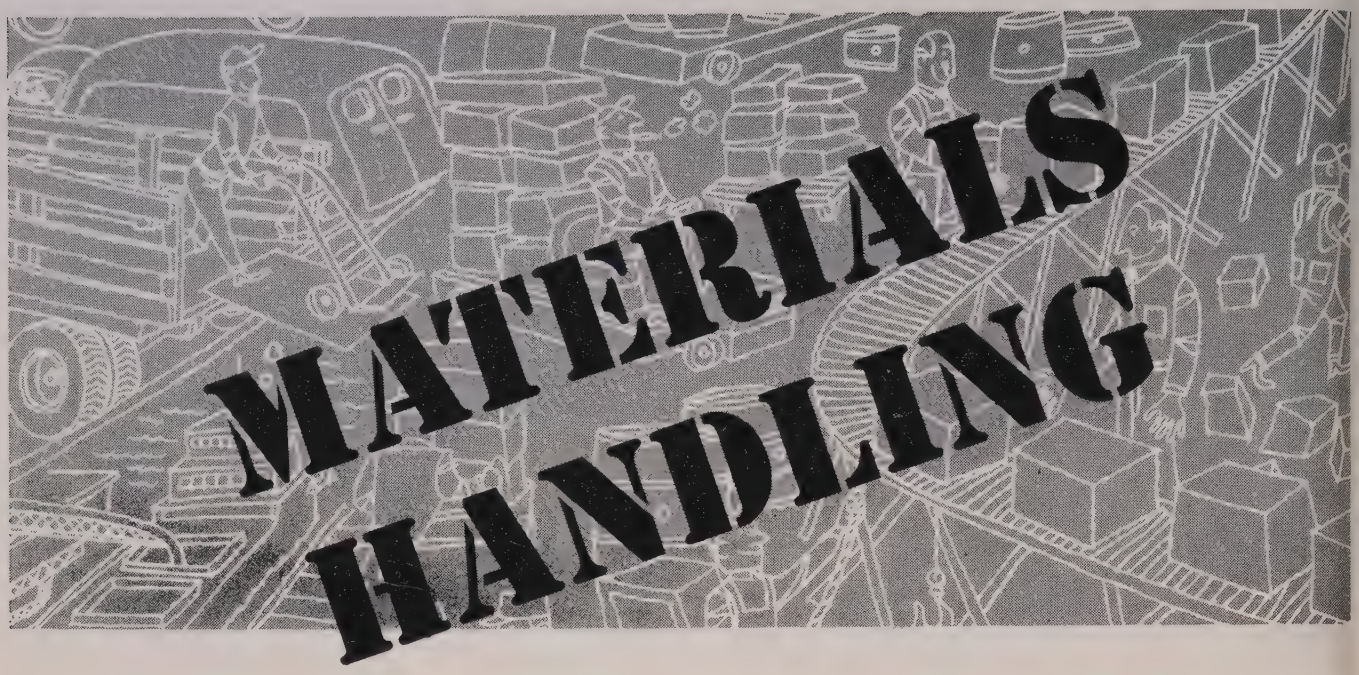
CONTROLS INDUCTION HARDENING—Of particular interest to those concerned with temperature control in high frequency induction heat treating is a special small target high speed Rayotube detector which has been developed by Leeds & Northrup. The new temperature detector requires a target area of only 1/10-inch at a distance of 4 inches and can sight between the coils of a multiple coil type induction machine, directly upon the work. It responds so fast that 99 per cent of the temperature change is recorded in 0.1 second. Because final temperature is accurately measured, depth of hardness can be readily adjusted by varying power input. For continuous processes, a control unit, responding to the temperature detected, positions a rheostat to control the power output of the high frequency generator. The detector can also be geared to control the speed of a conveyor or drive moving the parts through the inductor. For batch type processes a single control contact automatically ends the heating cycle when the desired temperature is reached.

HARDY SPECIMEN—A special little corner of the electrical engineer's mind is reserved exclusively for the problems of component reliability. It bothers him considerably, sometimes. This is true even though the life of electrical equipment has been drastically improved in the last few years. When a piece of equipment comes along with an extraordinary life—everybody sits up and takes notice. This happened at the recent Westinghouse Machine Tool Electrification Forum when H. E. Grimes, Avey Drilling Machine Co., told the group about some telephone equipment applied to machine tools. One of the stepping switches requires almost no adjustment except to readjust the pressure of the stepping spring after about 200,000,000 steps. That should satisfy even the most hard-to-please.

PERFECT CRYSTALS—Work on defects in crystals is assuming importance in metals research, as ordinarily used metals consist of crystal and there are usually defects in the regular arrangement of the atoms of which they are built. According to General Electric metallurgists, if such defects can be eliminated, theory indicates that metal strength might be increased as much as a thousand fold. Studies on perfect crystals show them to be far stronger than ordinary crystals.

ELECTRIC FURNACE REDUCING — Making steel from ore in the arc furnace isn't an immediate possibility but it isn't pure theory. Additional work must be done before large scale operations are undertaken but there is already considerable operating data to show advantages under certain conditions. Three factors promote interest: Lower installation cost per ton of steel produced, increased power availability and greater operating flexibility. Quick shutdowns and fast startups permit operations on a spasmodic schedule. Different analysis pig iron could be produced in successive heats making this type of installation attractive to the smaller producers. p. 144

CHIP-FREE PRODUCTION—Small chips and shavings can create production delays out of proportion to their size by sticking to magnetized tools and metals. To lick this problem Rason Mfg. Co. has devised a lightweight portable unit that is placed over the object to be demagnetized and does the job in nothing flat. Power is supplied by any conventional 110 v alternating current outlet.



It Can Cost You . . . or Pay You

Estimates of the handling bill vary but no one disputes its importance in the cost of the finished product. It's worth the effort to find a better way

COMPUTING the cost of moving materials isn't an easy job but it's safe to say that metalworking's total bill is a big one. Howard M. Palmer, general sales manager, Lewis-Shepard Products Inc., estimates the handling of materials accounts for 22 per cent of the cost of all manufactured products. A British productivity team studying U.S. industry reported that handling costs range between 15 and 85 per cent of total manufacturing cost.

Other estimates by experts in materials handling generally put the handling bill in the 30 to 40 per cent range. Part of the difficulty in arriving at a cost figure is the matter of definition. Some companies only consider the cost of materials handling equipment and the wages paid to employees whose primary function is moving materials. Others add the handling functions performed by production employees, often a sizable factor.

Various handling studies lend support to the claim that materials handling is the "last big frontier for cost cutting." Like all broad general statements it is subject to challenge but it's generally agreed that production processes are more efficient than the movement of materials.

Moved Often—Indicative of the size of the handling job are studies made in foundries showing that more than 100 tons of material must be moved for every ton produced. In many plants the ratio is at least 50 to 1. Even if all this handling were performed by unskilled help it would still be expensive with wage rates for the lowest class of employees at an all-time high.

A clear cut method for lowering handling costs is to lay out the plant for greatest efficiency in the flow of materials. It's inconceivable that any company planning a new plant today would finalize its design without considering the best way of moving material in process through the various stages of manufacture. Placing equipment for greatest production efficiency takes into account the handling requirements. Aisles are laid out to expedite movement of mobile equipment, and cranes, hoists, conveyors, etc., are spotted for greatest efficiency on scaled layouts.

Long View—This type of planning pays big dividends. A. T. Waidelich, vice president and manager of research, The Austin Co., Cleveland, explains that work in the design and construction of production and distribution facilities frequently starts with a comprehensive engineering survey of the methods and procedures available to solve any particular problem. Methods and equipment selected to perform any materials handling function not only influence space requirements but can also be the means of eliminating much of the paper work usually required for inventory and operating control. He points out, "Unless the various alternatives available to solve any particular problem have been explored by someone who appreciates the ultimate potentials, you never know whether you are realizing the maximum economies obtainable by the proper selection and efficient use of equipment."

Unfortunately many companies with materials handling problems can't reach a solution with a new plant, designed for maximum handling efficiency. They have to achieve their goals by making the most efficient use of equipment capable of being used within the confines of their present structure. Even the limit on handling im-

provement isn't too confining as many companies can and do improve materials movement in older plants.

Handling's Goals — Four major objectives of materials handling are listed by the American Materials Handling Society: 1. Reduction of handling costs, 2. increase of capacity, 3. improvement in working conditions and 4. better distribution. Providing the better system will achieve all four points in varying degrees depending on the particular activities covered.

A high degree of mechanization is desirable where production volume and the type of operations performed justify the investment in capital equipment. In many plants production in units isn't high and a simpler solution can still affect major economies. Powerized hand lift trucks, platform trucks, tractors and fork trucks are widely used but not always to the peak of their efficiency. Special attachments can be supplied for many of these common carriers to make them more efficient. They can be tied into other handling equipment by exercising engineering ingenuity to do jobs for which they were not intended at the time of purchase.

Many of the attachments available from truck builders have the added feature of speedy mounting and dismounting. In the event that the special attachments are needed only periodically, little time is lost in converting a standard truck to a specialized handling unit.

Power Selection — Where these trucks used to be electrics, gasoline or gasoline-electric both diesel powered and diesel-electric trucks are now available. In addition an explosion proof lift truck for the Armed Forces is being developed. Power may come from compressed air, liquid carbon dioxide or from a gyroscope brought up to speed outside the explosive atmosphere and then taken in and worked by power taken from the gyro.

In several plants and warehouses high lift fork trucks move material to second floor or mezzanine storage or processing. A photo electric system automatically opens a door to the elevated area when the load breaks the light beam and closes when the transfer is completed. This method eliminates the need for elevators and completes the movement of materials in short order.

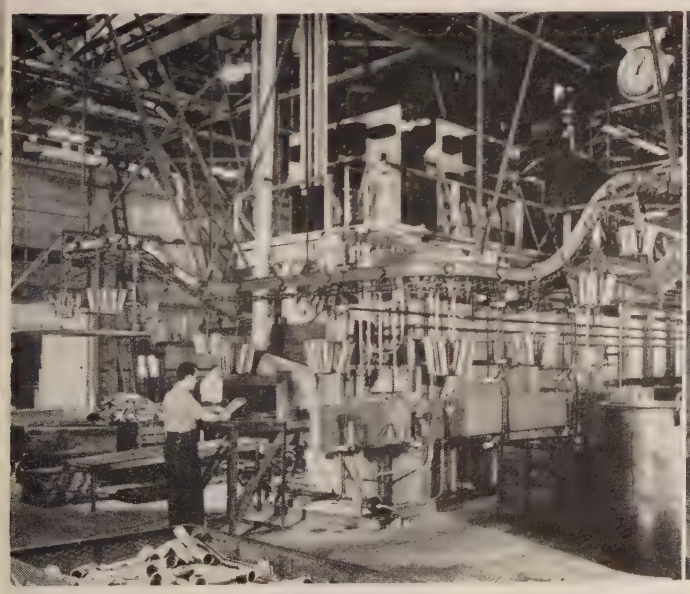
Scientific Analysis — Improved performance, greater flexibility and special accessories on industrial trucks still do not eliminate the need for a sound engineering approach to the entire problem. Flow diagrams will indicate where material backtracks or where many flow lines cross each other. Cleaning up these conditions will permit the more efficient utilization of existing equipment and reduce direct handling costs.

Overhead cranes have long been a standby of metalworking production and are still tops for fast, intermittent movement of relatively heavy parts for longer distances. Equipped with special handling or clamping devices they can quickly and safely move a great variety of odd-shaped parts in addition to the normal sling or strap loads. Improved controls, often designed and built by the crane manufacturers, yield increased speed and safety. Fluid drives installed recently provide smoother performance.

Despite the improvement in overhead crane design other handling methods have moved in to take over part of the work load. Few companies feel they can afford to have production workers wait for the one or two overhead cranes available to make short lifts of heavy workpieces. Electric hoists, jib cranes and gantrys step in to take over these jobs. Equipment costs are often amortized in short order by a reduction in employees' idle time.

Even for Amateurs—To speed up the handling, lifting mechanisms are motorized and controls today permit even an inexperienced handler to spot or move the load with little danger of injury or damage to equipment. Pushbutton controls are available on even the less expensive lightweight hoists. These controls eliminate much of the fumbling for the right rope and permit more positive control of the load.

In a general machine shop type



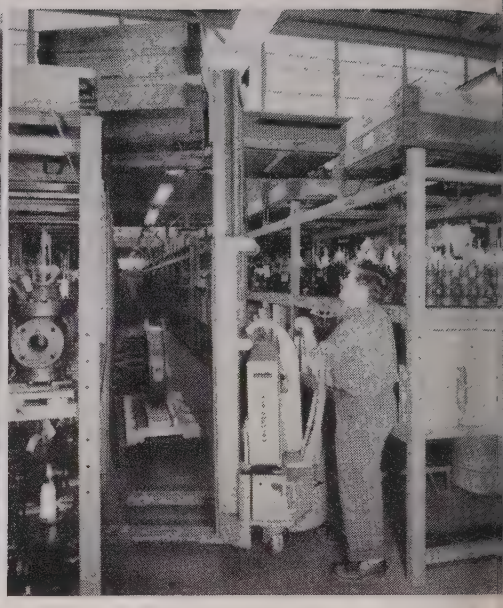
An overhead trolley conveyor 856 feet long carries parts from assembly stations to any of five annealing furnaces at North Chicago plant of Houdaille-Hershey



Eyebolts which have been stud welded on the hot water heater tanks make much easier the problem of handling through the processes of wash, pickling and galvanizing



Roller conveyors at Waukesha Motor Co. move the tote pans filled with parts to the packing setup. Similar lines are used throughout the plant for processing



Some of the smaller lift trucks have the ability to lift loads to appreciable heights. Thus a big reduction in the need for storage space in a plant is made possible

of operation, the position of the hoist with respect to the machine tool and to the skids or tote boxes must be examined to determine the best vertical lift characteristics. Side pulling on electric chain hoists is never recommended. On cable hoists, side pulls tangent with the drum circumference are limited to the reach of the wire rope. Side pulls parallel to the axis of the cable drum are limited to 1-inch for every 1 to 1½-foot drop of the load hook.

Reason for the latter rule is that wire rope is used as a lifting medium and must spool properly on a grooved drum. Chain hoists have similar limitations. When roller chain is used flexibility is possible in only one direction since side plates and roller pins used in assembly prevent bending along the normal axis of the hoist drum. Perpendicular to the hoist axis flexibility is limited only by the hoist frame and amount of chain.

Cover the Field—Proper mounting of the hoist permits proper coverage of the area to be served. Hoist may be lug mounted or hook mounted, either stationary or on a push type, hand racked or motor driven trolley to give horizontal movement for spotting loads. When serving a single machine it is often best to use a winging jib crane with enough length to provide complete coverage of the machine tool and temporary storage area. If the hoist must serve more than one or two machines, standard monorails can be mounted for a runway and a single beam crane bridge suspended therefrom to provide four-directional coverage.

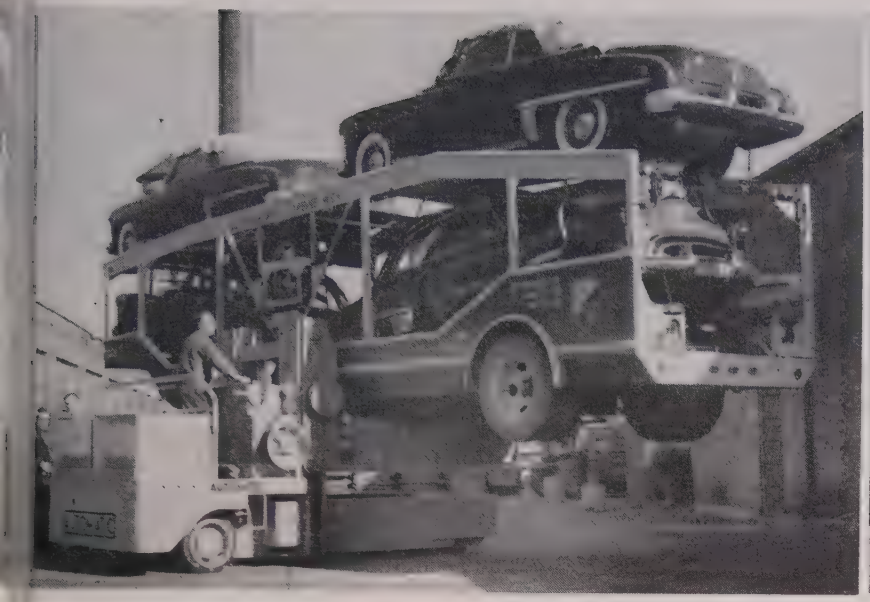
Specialized installations require detailed planning since definite amounts of material must be moved in given time cycles to tie in with production equipment. A special hoist with an extra rapid lift may be needed to move parts from one level to another, for example. Or a hoist may be required to make more than the standard number of lifts per hour for the entire shift.

Possibilities Immense — An almost endless variety of conveyors from the simple roller and gravity types to powered units specially engineered for high volume requirements help keep rising costs in check. It doesn't take a fancy unit to do the job even in the largest plants. Chrysler Corp., for instance, licked its battery problem with roller conveyors. When the former storage method resulted in poor battery rotation with resulting customer complaints, the company set up its storage on roller conveyors. Now the batteries come in at one end and are put on the roller conveyor. At the other end the oldest battery in the group is taken off and installed in the completed vehicle. Not only are service complaints eliminated but time taken in rehandling is also cut.

Trolley conveyors enjoy considerable popularity for a wide variety of assembly and processing operations. Although the original equipment cost may be relatively high, it doesn't take long for the cost to be amortized by savings in handling costs. A component can ride through a variety of operations like cleaning, precoating, painting and drying to final assembly without requiring any handling except for being put on and taken off at the terminal points. In addition to the



Strip steel coils weighing 10 tons are easily handled by Heppenstall tongs and don't require a ground for fastening tongs to the coils



Even this spectacular lift of 15 tons doesn't tax the 110,000-pound capacity of this electric truck which is being used by Oldsmobile at Lansing for die handling



Tail stub assembly being loaded onto trailer at Chrysler Corp.'s Los Angeles plant for the trip to Douglas Aircraft for final assembly into Globemaster fuselage

saving in handling costs this system provides parts at the correct level for processing and provides a float of parts minimizing storage requirements.

Move It Over—In scrap disposal, conveyorization is really coming into its own. As the machine tool and press builders design and build machines that work faster and faster the scrap disposal problem keeps pace.

Automatic machinery employs a variety of conveyors to move scrap as it's generated away from the machines to eliminate the need for stopping an expensive piece of production equipment just to clear away the scrap. Oscillating, screw-type and continuous steel belt conveyors are among the types used to do the job. They may empty into nearby dump pans and be taken away by lift trucks or cranes or may feed into systems more than a thousand feet in length that terminate at an automatic scrap baler.

A recent solution to a tough handling problem is the semi-automatic stud welding process used to move billets through heating furnaces for hot extrusion. T-shaped studs or handles are attached to 400-pound billets for hanging on a continuous conveyor that passes through a three-stage gas furnace and barium chloride bath enroute to the extrusion press. This technique helped the furnace builder meet the customer's requirements for an extremely compact and economical furnace design. A similar mounting is used for holding electric hot water heater tanks in an upright position through wash, pickling and galvanizing.

Reaching the Peak—Automotive companies, because of their high volume and the nature of the operations performed, are further along the road to eliminating manual handling than most other metalworking companies. Automation—defined by Ford as the automatic handling of materials in process—is used to index, position, turn or rotate parts, depending on requirements of the various succeeding operations.

Among the advantages cited are: Lower production costs by reducing manual handling, greater production per machine by eliminating inherent delay in loading and unloading cycle, reduced damage resulting from parts striking each other, greater safety and reduced fatigue.

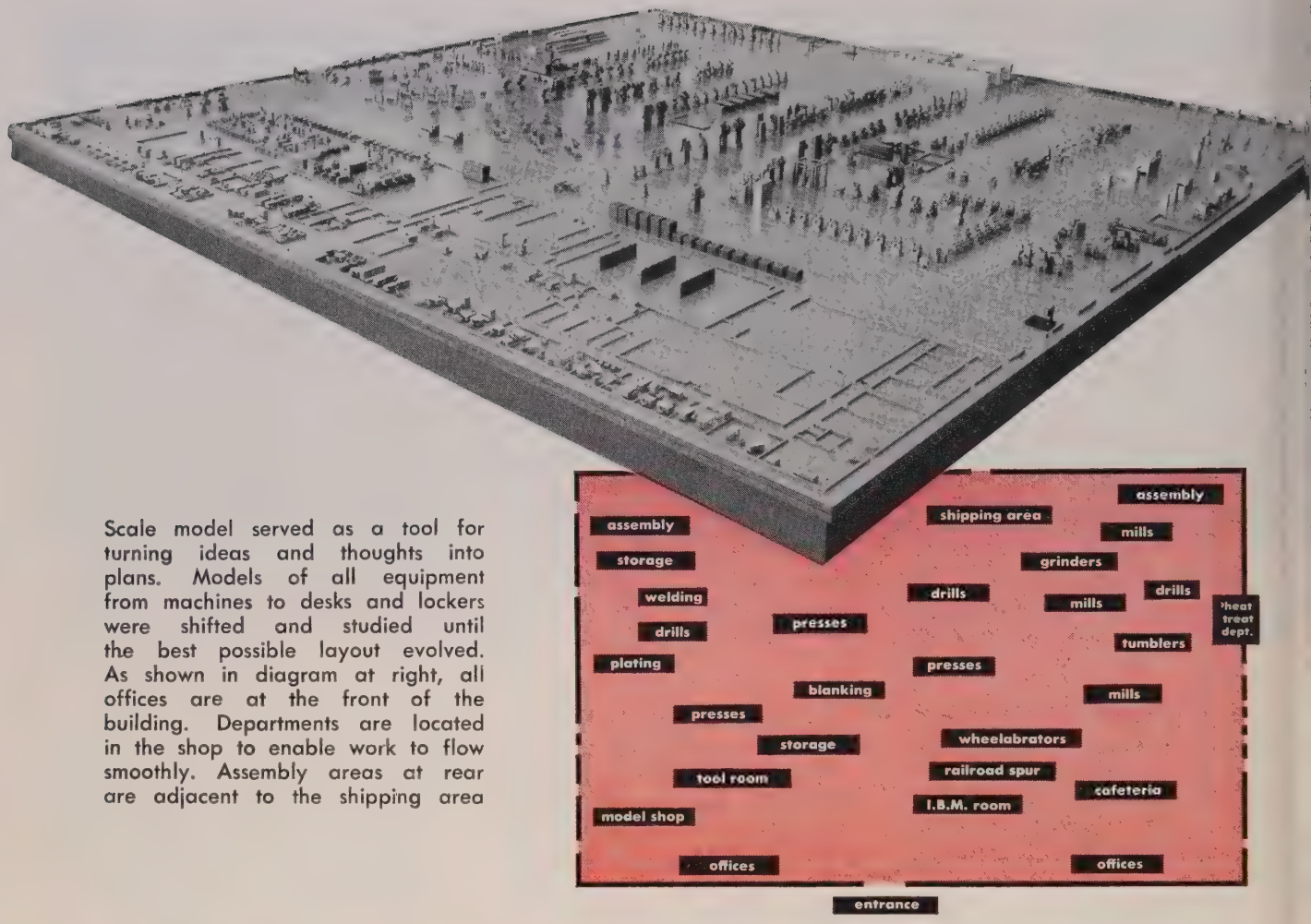
Survive Slumps—A question in the minds of prospective handling equipment buyers, especially those considering the installation of more complex and therefore expensive systems, is whether the system will be practical and economical under reduced volume operations. Prior to the outbreak of the Korean war, equipment builders carefully studied this question in plants that were temporarily operating below capacity.

The answer: Systems that are carefully planned and built and capably managed or operated show surprisingly low break-even points where selling prices in the industry are not too seriously depressed.

Another difficult question to resolve is how far to go in mechanizing materials handling. Only by studying the plant, processing operations and market potential for the products can this question be answered. High volume doesn't necessarily mean a complex and costly installation is necessary. First of all it is necessary to determine whether the installation will be used over a long enough period to pay for itself.

For example a tailored conveyor system might be indicated without study but if the job for which it was intended wouldn't last long enough to amortize it, fork trucks which could be used subsequently would be more economical in the long run.

Studying the operation is a must before material handling equipment of any type is purchased. Probably the best way to solve a handling problem is to eliminate it altogether. Obviously this oversimplifies the problem and parts in process will continue to be moved. Management must decide what methods will permit movement at the lowest cost possible.



Scale model served as a tool for turning ideas and thoughts into plans. Models of all equipment from machines to desks and lockers were shifted and studied until the best possible layout evolved. As shown in diagram at right, all offices are at the front of the building. Departments are located in the shop to enable work to flow smoothly. Assembly areas at rear are adjacent to the shipping area

Production Flow GETS GREEN LIGHT

Ideas and plans for a new plant started on a foundation of best possible materials handling. Result — handling distances cut 80 per cent

CAREFUL STUDY in the planning and building stage makes a new plant a materials handling asset.

When Atwood Vacuum Machine Co., Rockford, Ill., outgrew its old plant, engineers and management decided to make sure the new one would be an asset from the handling point of view. First step was to use exact ¼-inch to one foot scale models of all equipment.

Construction Checkers — Models were moved around on a board and location of lines of machines, departments, offices and all other equipment became an easy-to-see picture instead of a vague idea. This proved especially valuable since neither an architect nor a consulting engineer was called in.

Opinions of a great many people, including machine operators, were thrown into the till. Result was the layout for a plant built around across-the-board efficiency.

During the organization stage it was decided that line production operations should be considered not only as related to the factory, but as also related to office functions. Offices were arranged so there would be a minimum of personnel travel in order to reach others with whom there is a close association, either verbally or in terms of paper work.

An example is the tool engineering department, located adjacent to the tool room. Frequent contact between the two departments involves a minimum of travel time.

Starting Line—Incoming raw material is stored in a bay adjacent to the office area. This storage section amounts to 32,500 sq ft and is big enough to hold a 45-day balanced inventory.

In this same bay are the shears and saws which cut the material to working size. Since in this type stamping plant most of the scrap is generated in this first operation, it is moved a relatively short distance to the scrap handling area for processing by an Atwood system (STEEL, Jan. 26, p. 76). Railroad spur comes into the scrap-handling area. Capacity is five cars. Quick car-loading device gets scrap out of the shop in minimum time.

Through Traffic — Work moves from the shears and saws in the storage area through the press lines, drill lines, etc. and on to the shipping area. Since not all orders will require assembly operations, the two assembly departments are located adjacent to the shipping area for convenience, but to one side. Thus orders which don't require assembly can move right into shipping.

Welding, heat treating and other departments which are not on the routing of all jobs are likewise located to one side of the main route to shipping.

Built-in Versatility—Because it is a job lot stamping and assembly plant, considerable flexibility must be maintained in machine utilization. It's accomplished in part by an extensive system of secondary power distribution through bus ducts and air lines.

In addition, it was recognized that various areas would be used for different purposes from time to time and the manufacturing area should be flexible. As a result the plant is essentially one large room. Only two fixed structures, containing foremen's offices, air compressors, etc. interrupt the open area. Otherwise the whole shop is available for relocating of equipment.

Down the Line — Atwood, for many years a supplier of stampings to the automotive field, has found that it is more economical for them to take four or five successive press operations and put them into individual machines rather than into one large machine. Thus in many cases, a line of adjacent machines will be doing successive operations on one job. Parts are transferred through chutes or on conveyors between these adjacent operations whenever possible. As a result there is a virtual elimination of extraneous handling.



Raw material comes in by rail and truck and is stored in an area adjacent to shears and blanking presses. Scrap handling facilities are also nearby so rimmings from initial operations do not move into the other shop areas

When a die breaks in one of these stages, other operations can continue without interruption. Material is simply banked until the "down" stage is ready for running. When one operation is slower than the others, additional presses can be set up to add capacity on the slow phase.

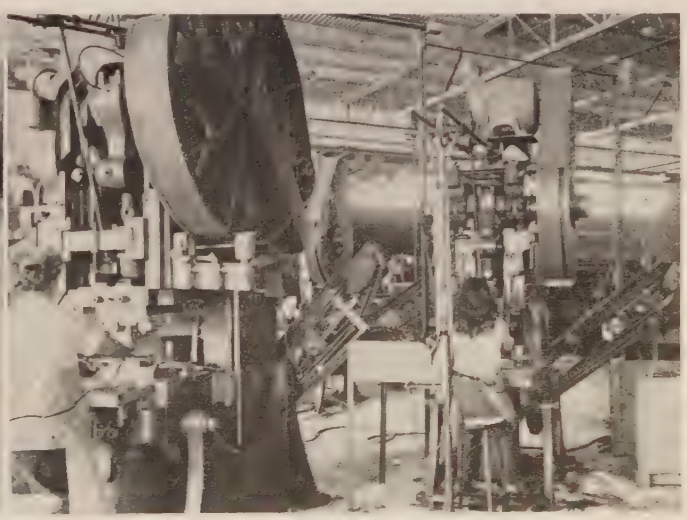
Stitch in Time—Dies are kept on pallets and are stored in a central storage area. After a job is run and the dies are removed from the machine, they are checked and if repairs are required, fixing is done at that time and not when the die is requested for production.

Efficiency of the new plant shows up in the elimination of 22 hand truckers. Increase in the number of forklift operators from 10 to 15 gave a net reduction in handling personnel of 17 people and permitted them to be moved to production operations elsewhere.

In comparison with the old plant activities, about 80 per cent has been cut off the distance material moves, making possible a cost cut of approximately 50 per cent.



Press operators drop finished pieces into metal chute which conveys them to the next press for another operation. At end of line they are dropped into tote box



As another stage in parts processing, these pieces are ejected through the back of the openback presses and onto a lift conveyor for transfer to adjacent press

Materials Handling Standards



". . . Material to do all the tasks of a war began arriving at shipyards, supply depots and assembly plants in such huge quantities that the military was swamped . . ."

THEY'RE EASING MILITARY PROCUREMENT COSTS

By agreeing on standards for fork trucks, pallet trucks, tractors and cranes as well as their components and mountings, manufacturers and services stand to gain

By RUSSELL A. MOODY
Chief, Office of Standardization
Defense Supply Management Agency
Washington

STANDARDIZATION of materials handling equipment by the Armed Services is making steady progress in providing interchangeability and mutual economies. The task of establishing those standards, however, is taxing the best brains in both the military and industry.

Two eras in American industrial history began December 7, 1941. The first was the creation of a new industrial capacity geared to sustained military requirements. The second, spawned by war's attendant logistic problems, involved the distribution of goods emerging from this new industrial capacity.

Looking Back — Tied to these war-born phenomena were the beginnings of another era—that of modern materials handling. And even as the mountains of war materials were being moved, the need for standardization of equipment was felt. But the concepts and techniques of mechanized handling had not been standardized, much less the equipment. Why this situation existed can easily be understood.

Immediately prior to World War II, mechanized materials handling had scarcely passed from its primitive origin of winch, boom, and cart. Some of the larger industrial firms had installed mechanized equipment, but it was primarily concentrated in production lines where materials moved over monorails and other conveyors.

Floundering Start — The impact of mechanized materials handling equipment on production lines resulted in increased production, reduced worker fatigue, conservation of materials, and a lessening of stop and go lines which had existed under manual materials handling techniques.

Industry, however, failed to foresee the benefits which lay ahead in the shipping, receiving and warehousing fields through mechanized materials handling. Difficult as it is to understand, from the vantage point of a decade, this phase of distribution of goods was permitted to flounder and grope until the United States was plunged into war in 1941.

One Weakness—In a preparedness move, many industries had been gradually stepping up production from 1939 on, but with the beginning of 1942, industry was faced with the necessity for allout production. Military orders of undreamed of volume began to flow into plants throughout the country in an attempt to keep pace with the mobilization requirements of the Armed Forces.

Looking back, we can all agree that American industry surpassed itself in giving our government what it wanted when it wanted it. But the high efficiency of the production lines disclosed our national lack in adequate distribution facilities. We found that a finished product was useless unless it reached its destination on time and in sufficient quantity.

Shipping Headache—Every plant and factory had its own problems in moving out finished goods, as industrialists still recall with a shudder. All of us remember the long hours spent loading railroad cars, trucks, planes and ships and the relief that came with slipping a seal on a boxcar door or receiving a receipted bill of lading from a trucker. But the problem, ended there for the manufacturer, was just beginning for the military.

Material to do all the tasks of a war began arriving at shipyards, air stations, supply depots, piers,



". . . The armed services materials handling system grew. Using the fork lift truck and the pallet as basic units, the military began devising better ways of handling . . ."



". . . Mechanized materials handling, in every theater of operations, couldn't go everywhere a Jeep could, but it was responsible for the Jeep getting there . . ."

and assembly plants in such huge quantities that the military was swamped.

Manpower alone could never have handled the supplies and kept schedules. An answer had to be found and right then.

Building A Science — A small group of officers and civilians, many recruited from industry, faced the problem squarely, and practically overnight created the science of mechanized materials handling.

The need was evident and the challenge was accepted by both the military and industry. The fork lift truck, the tractor-trailer train, the mobile crane, and the gantry truck were given as high a production priority as bullets and beans. Manufacturers of materials handling equipment, industrial batteries, battery chargers, pallets, skids, and other related items were flooded with urgent orders and responded in a fashion which has rarely been matched.

Systems Grew—As this critical equipment gradually became available, the mechanized materials handling system in the armed services grew. Using the fork lift truck and the pallet as basic units, the military began devising better ways of handling, storage and distribution. A growing experience among personnel prompted thousands of beneficial suggestions which helped guide the development of system.

Studies, suggestions, experience, and additional equipment built a sound materials handling system. Mechanized materials handling equipment was used in every theater of operations and, although it couldn't go everywhere a Jeep could, it was responsible for the Jeep getting there.

Postwar Surprise — Although mechanized materials handling had proved its worth in World War II, it was expected to taper off with demobilization. Some military people who had tolerated mechanized methods in the emergency, awaited a return to the tried and true old ways. They were due for a surprise.

As military forces shrunk, military budgets were curtailed sharply, and civilian employees of the military were reduced accordingly. Manpower once more became a problem to logistics planners. The people who had hoped to revert to pre-war materials handling methods began to recognize that mechanization would solve the problem of too few hands as it had the problem of too much material. Mechanized materials handling had arrived to stay.

Enter Standardization — During the war, when materials handling equipment of any kind was eagerly sought, the military accepted everything regardless of type, capacity, lift height, mast height, and other variants. Grateful to an overtaxed industry, the military had nevertheless learned, during its wartime operating experience, that standardization was necessary if any degree of economy and efficiency were to be expected.

Therefore, although the concept was established, the problems were not over for the planners. With the reduction in volume of goods and the reduction in personnel, the military departments found that they owned far more mechanized materials handling equipment than they could operate economically. It became apparent that this equipment would have to be screened to determine which would provide the best performance.

"How Much" and "What"—Consistent with operations and budget, the planners had to determine what equipment was to be declared surplus and how much. To determine "how much," a study was conducted to establish "what" type was most flexible for diversified military operations, considering that specialized equipment was, in most cases, a luxury. It was recommended that multipurpose equipment be adopted as the best means to reduce inventories. This principle has since proved to be the correct one.

It later developed, however, that some of the specialized equipment was sorely missed. In order to stay within the limits of a greatly reduced budget, and yet retain required equipment flexibility, many new gadgets were tried. Some have proved successful and have been



". . . In order to stay within the limits of a greatly reduced budget, and yet retain required equipment flexibility, many new gadgets were tried . . ."

improved to the extent that industry has adopted them as commercial attachments. Some failed due to a lack of standardization within industry. To avoid misunderstanding, this statement must be explained in some detail.

Problem of "Specials" — Special attachments such as drum handling devices, barrel and bale clamps, revolving carriages, and so on, can, without a doubt, perform their special functions in a more efficient manner than a regular fork lift truck. However, each of these attachments is made to fit a particular make or model truck, providing for little interchangeability due to different carriage and fork mountings.

Since the military cannot and does not wish to confine its procurement of fork lift trucks to a particular manufacturer, to benefit from the various devices it would be necessary for the services to procure all of the special devices now on the market. Industry has recognized this problem and by voluntary action has established a family of standard carriage and fork mountings which are incorporated in new designs. This does not provide immediate relief to the military, of course, but is a step in the right direction.

Standards Set — Following completion of individual studies in the mechanized materials handling field by Army, Navy and Air Force, the services met in 1951 to establish a standard for such equipment. Designated MIL-STD-137, this document established such basic criteria as capacity, collapsed mast height, lift height, draw bar pull, and fork length. In effect since May 3, 1951, this standard is now undergoing revision to reflect operating experience and new developments. Like all documents in the Military Standards Series, it is mandatory for use by Army, Navy, Air Force and Marine Corps.

Since MIL-STD-137 established only basic data, it was necessary to draft detailed specifications for all equipment contained in the standard. This extensive task is still in process. The first three of these coordinated military specifications, MIL-T-15442, MIL-T-15445, and MIL-T-15830, is being published by the Defense Supply Management Agency.

Standard Batteries — Specifications for battery powered fork lift trucks, pallet trucks, industrial tractors, and cranes will embody standard battery compartments to accommodate standard batteries, which are included in a forthcoming military standard. It has already been determined that batteries of 12 and 36 volts will meet all military requirements for materials handling equipment.

Accordingly, future procurement will be limited to those two voltages, except for replacement in existing non-standard equipment due to be retired when worn out. The 12-volt batteries will be used in all driver lead equipment, and the 36-volt batteries will power all other materials handling equipment in the military system. In industrial mobile cranes, requiring 72 volts, two 36-volt batteries will be connected in series.

Chargers and Receptacles—This effort will further sponsor standardization in battery charging equipment. Current plans are to standardize on universal type chargers capable of charging both nickel-iron-alkaline and lead acid batteries.

The final step will be to standardize battery plugs and receptacles thus completing the standardization of the entire family of battery-powered materials handling equipment and related accessory equipment necessary for operation.

Briefly, the standardization package, both completed and in process, includes the fork lift truck or tractor which performs the work, the battery that powers the truck, the plugs and receptacles that carry the power, and the chargers that keep the batteries in condition to perform their function.

All this standardization was accomplished without disrupting production, increasing cost of procurement, or requiring special tooling.

Industry's Big Part — Although the rapid growth of mechanized material handling can be directly attributed to military requirements since the end of 1941, it must not be assumed that industry has not played a vital part in the process. Meeting military demands and listening to military suggestions, industry has co-operated willingly in the acceleration of the Mechanized Materials Handling Era.

Together the American armed forces and industry have proved the mechanized materials handling concept, have improved equipment and techniques, have provided the interchangeability which is a critical factor in military operations, and have produced mutual economies. Latest reports indicate that procurement costs of these items are steadily dropping despite rising labor and material costs.

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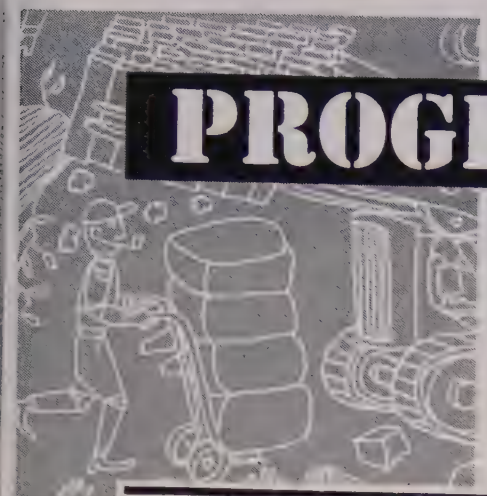
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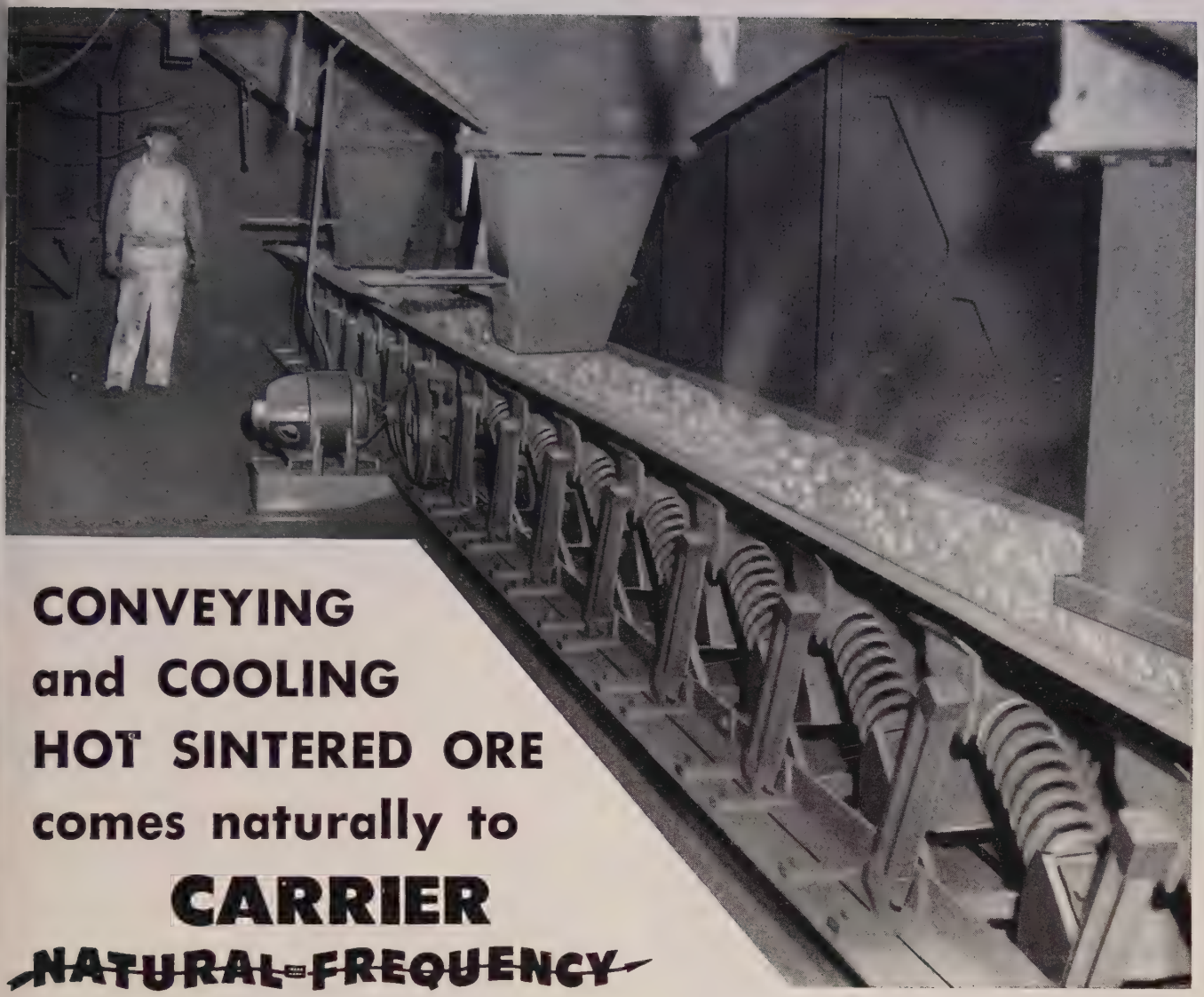
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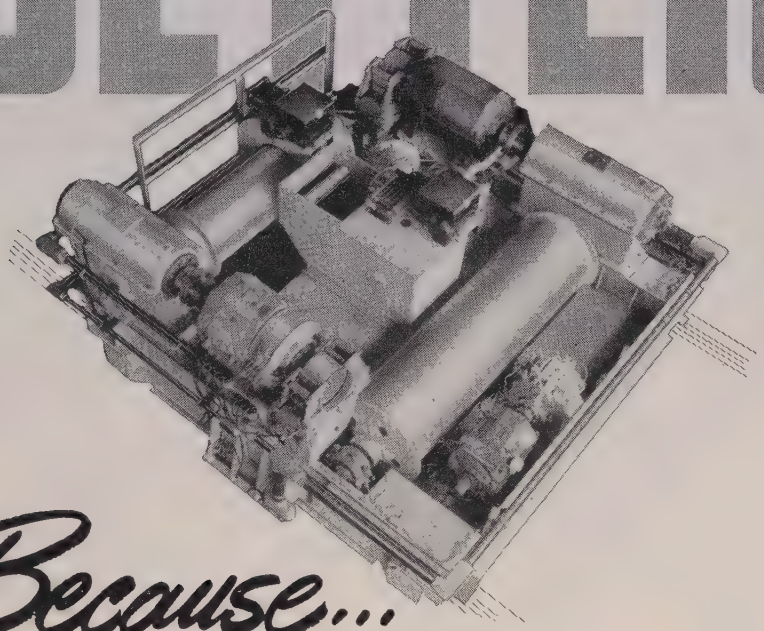
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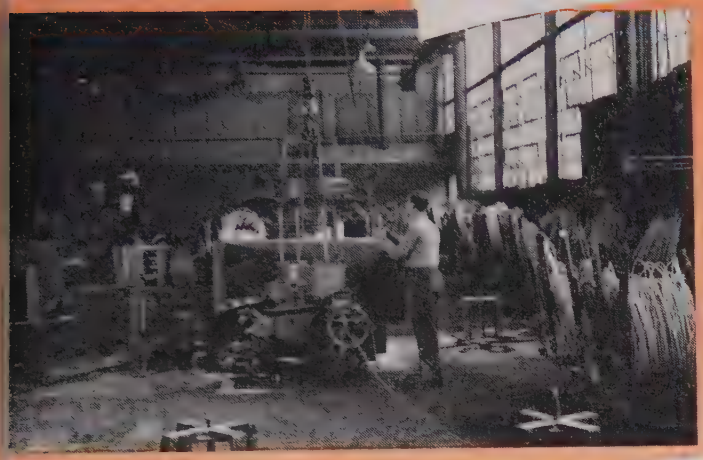
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Conco Engineering Works, Mendota, Ill. *Jib cranes, trolleys, hand chain hoists, electric cranes*	1402
Continental Diamond Fibre Co., Newark, Del.	132
Continental Motors Corp., Muskegon, Mich. *Industrial engines and power units*	1250-A
Conveyor Specialty Co. Inc., North Quincy, Mass. *Belt and press conveyors and portable piler*	1110
Crescent Metal Products Inc., Cleveland *Aluminum and magnesium racks, cabinets, dollies, carts*	404
Cushman Motor Works, Lincoln, Nebr. *Stake, chassis, package and personnel trucks*	145
Dearborn Motors Corp., Birmingham, Mich.	1820
Dempster Brothers Inc., Knoxville, Tenn. *Dump truck, metal baling press*	133, 135, 137, 139
Detecto Scales Inc., Brooklyn, N. Y.	340
Dico Co., Des Moines, Iowa	1800
Dings Magnetic Separator Co., Milwaukee *Lifting magnets, sheet floaters, pipe rolls*	414
Divine Brothers Co., Utica, N. Y. *Industrial truck wheels and casters*	415
Charles Wm. Doepke Mfg. Co., Rossmoyne, Ohio *Nesting and tiering type shop boxes, baskets and racks*	714
Doerr Electric Corp., St. Louis	609
Drake, Startzman, Sheahan and Barclay, New York	814
Econoweld Inc., Dayton, Ohio	1831
Edison Storage Battery Division, Thomas A. Edison Inc., West Orange, N. J. *Nickel-iron-alkaline storage batteries; a production machine which manufactures positive tubes*	240,244,341,345
Elberta Crate & Box Co., Bainbridge Ga.	918
Electric Products Co., Cleveland *Battery chargers for hand and rider-type trucks, dual-circuit sectionalized panel for rider-type trucks*	1416
Electric Storage Battery Co., Philadelphia	1549
Elizabeth Iron Works, Inc., Elizabeth, N. J. *Ramps, pallet and conversion kit stackers, torque hook*	1145, 1147
Elwell-Parker Electric Co., Cleveland *Gas powered low lift platform truck, three-wheeled electric fork truck, gas fork truck with dynamatic drive, high-lift electric platform truck, electric roll paper clamp truck, electric mobile crane*	1134, 1233
Elwing Corp., Jacksonville, Fla. *Weather screen*	830
A. H. Emery Co., New Canaan, Conn.	304
William F. Endress Inc., Jamestown, N. Y.	1825
Engineering Research Associates Inc., Detroit	411

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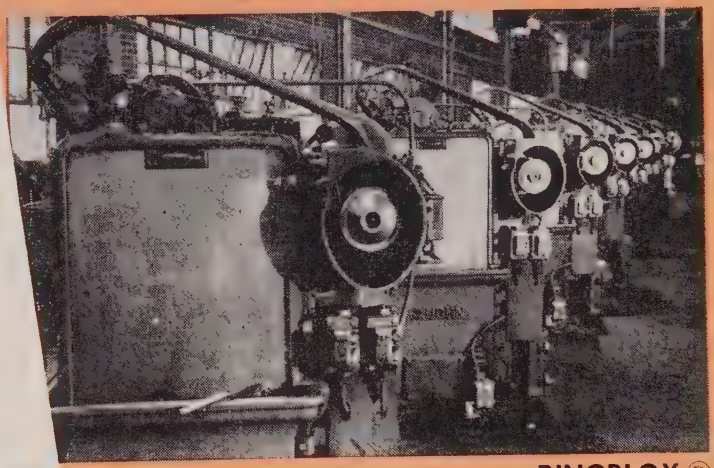
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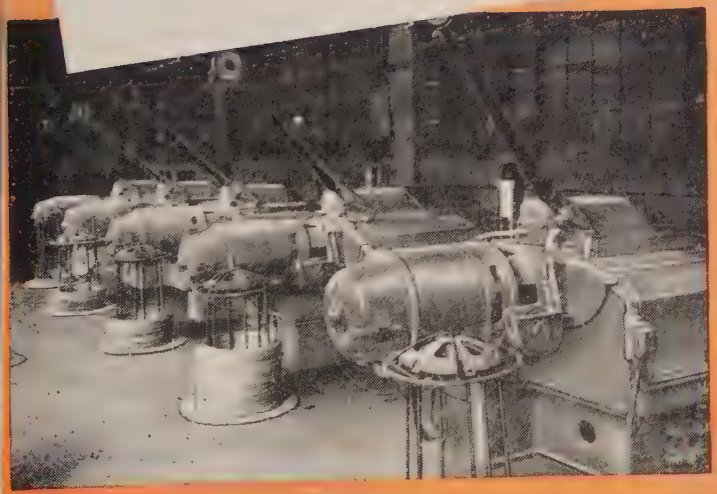
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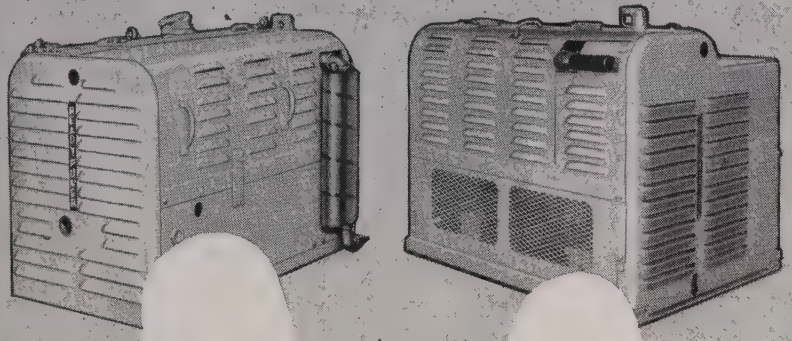
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5TH NATIONAL MATERIALS HANDLING EXPOSITION MAY 18-22, 1953 PHILADELPHIA

Booth 1404 & 1501

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EXHIBITOR	Booth
Equipment Mfg. Inc., Detroit ..... *Stacking type racks, new type collapsible box, pallet racks, stacking warehouse trucks*	1005
Evans Products Co., Plymouth, Mich. *Dunnage-free, damage - free freight loader*	1829
Fab-Weld Corp., Philadelphia *Trailers, pallets, bar racks, drop bottom hopper*	1505, 1548
Fairbanks Co., New York ..... *Casters, hand trucks, caster and truck wheels, valves, malleable iron and steel unions*	520
Arthur C. Farley & Co., Philadelphia *Die storage racks, pallet racks, steel cable racks, bar steel racks*	437
A. B. Farquhar Co., York, Pa. ... *Tractors, conveyors*	925
Faultless Caster Corp., Evansville Ind. ..... *Casters, glides, floor truck locks, wheels*	228, 232
Harry J. Ferguson Co., Jenkintown, Pa.	322, 421
Fibre Specialty Mfg. Co., Kennett Square, Pa. ..... *Trucks, tote boxes, trays, cans and barrels made from hard vulcanized fiber; other equipment made from Fiberglas reinforced plastic*	440
Flexa Steel Products Inc., Chicago ..... *Racks for bar stock and other heavy and bulky materials*	509, 511
Foote Bros. Gear & Machine Corp., Chicago	119, 121
Ford Motor Co., Dearborn, Mich. ..	1821
Foundry Magazine, Cleveland	1456
Fungitrol Chemicals Inc., Washington	417
Garlock Packing Co., Palmyra, N. Y. *Mechanical packings, gaskets and gasketing materials, expansion joint for controlling expansion and contraction*	1545
General American Transportation Corp., Chicago ..... *Covered hopper type car designed to handle dry ingredients in bulk*	RR Siding
General Box Co., Chicago	122
Apparatus Division, General Electric Co., Schenectady, N. Y. ...	708, 710
Electronics Division, General Electric Co., Syracuse, N. Y. ..... *Two-way radio communication as adapted to materials handling equipment*	801
Gerlinger Carrier Co., Dallas, Oreg. ..... *14,000-16,000-pound capacity industrial fork lift trucks and material carriers*	1014, 1018, 1022
Gerotor May Corp., Baltimore ..... *Pulsating panels*	917
A. J. Gerrard & Co., Melrose Park, Ill. ..... *Heavy-duty strapping unit, light-weight strapping outfit, other items for strapping, and tools and equipment*	306
Gleason Corp., Milwaukee	339
Globe Co., Chicago	828
Globe Hoist Co., Philadelphia *Dock leveling ramp, hydraulic machine feeding table, hydraulic loading lift, hydraulic materials handling lift*	1252, 1254
B. F. Goodrich Co., Akron .... *Package handling conveyor belt*	104, 205
Gould-National Batteries Inc., Trenton, N. J. ..... *Batteries for material handling equipment*	335, 337

EXHIBITOR **Booth**

Grand Specialties Co., Chicago ... 101
Portable shop crane, materials handling elevator, adjustable clamps

Guilbert Inc., Philadelphia 1837
Vertical rising steel gates for elevator cars, expanded metal enclosures for freight elevators, safety interlocks and electric operating equipment for gates, fireproof doors for elevators

H. G. Hanline Co., Philadelphia ... 412
Steel band strapping tools, strapping, seals and accessories

Harnischfeger Corp., Milwaukee 1509, 1513, 1515
Model of overhead traveling crane, cutaway section of heavy-duty lift hoist and lightweight lift hoist, welder, excavators

Haslett Chute & Conveyor Co., Oaks, Pa. 418

Hercules Flooring Co., New York .. 829
Steel anchor flooring, oil-proof and truck-proof flooring

Hercules Motors Corp., Canton, Ohio 1813, 1815, 1817, 1819
Gas, gasoline and diesel engines from 3 to 500 horsepower

Karl A. Herman Co., Grand Rapids, Mich. 328
4-way adjustable dock board, twin screw and hydraulic power ramps

Hertner Electric Co., Cleveland 1400-1401
Motor generator battery chargers

Fred Hill & Son Co., Philadelphia 808, 810

Frank G. Hough Co., Libertyville, Ill. 1349
Tractor-shovels and tractors

Howe Scale Co., Rutland, Vt. 536

Philip V. Hugues & Sons, Philadelphia 513, 515
Conveying vacuum cleaners, wet-and-dry vacuum cleaners, floor polishing and scrubbing machines

Hydreco, a division of New York Air Brake Co., Cleveland 1446
Pumps and motors

Hydroway Scales Inc., Detroit 637
Hydraulic crane scales, batching scales, scale storing stands

Hyster Co., Portland, Oreg ... 1206, 1305
Lift trucks

Ideal Stencil Machine Co., Belleville, Ill. 525
Stencil cutting machines, tape dispensing machines, fountain stencil brushes, felt tip markers, stencil inks and stencil board, tape printers, steel stencil filing cabinets

International Staple & Machine Co., Herrin, Ill. 422, 426
Stapling machines

Ironbound Box and Lumber Co., Hillside, N. J. 720
Lightweight hydraulic lift truck, steel-bound skid platforms, semi-live and barrel skids, lift jacks, platform paper roll trucks, dollies, pry bars, skid and pallet boxes

Jaeger Machine Co., Columbus, Ohio 1802, 1804, 1806, 1808

Joyce-Cridland Co., Dayton, Ohio 308, 310

Kalamazoo Mfg. Co., Kalamazoo, Mich. 1537, 1539, 1541
Trucks, tractors, light-weight power or hand driven truck, capacity 500 pounds

Truck-Man Division, Knickerbocker Co., Jackson, Mich. 115, 117
1500-4500-pound capacity

Geo. Koch Sons Inc. Evansville, Ind. 921



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EXHIBITOR	Booth
Koehring Co. and Kwik-Mix Co., Milwaukee ..... 1013, 1017 *½-yard capacity shovel, power wheelbarrow with fork lift attachment*	
Lamson Corp., Syracuse, N. Y. ..... 215, 217, 219 *Automatic switch tube system*	
Lanham Co., Louisville	349
Lansing Co., Lansing, Mich.	325
G. B. Lewis Co., Watertown, Wis. ..... 1300, 1302 *Industrial handling and shipping containers*	
Lewis-Shepard Co., Watertown, Mass. ..... 1334, 1433 *Short-turning lift truck, electric and hand tiering and lift trucks*	
Lift Trucks Inc., Cincinnati ..... 1137, 1139, 1141 *Hand motorized pallet truck, hydromatic multi-stroke lift truck, motorized tractor, hydraulic lift truck*	
Little Giant Products Inc., Peoria, Ill.	1805
Loomis Machine Co., Clare, Mich. ..... 314, 419 *Adjustable loading docks*	
Louden Machinery Co., Fairfield, Iowa ..... 510 *Monorail and cranes*	
Machine Design Magazine, Cleveland	1456
Magline Inc., Pinconning, Mich. ...	604 *Magnesium dockboards, hand trucks, safety tongs, safety blocks, skids*
Magne-Plastic Corp., Mt. Clemens, Mich. ..... 736 *Magnetic-plastic templets and allied equipment*	
Magnesium Co. of America, E. Chicago, Ind.	1126
Walter Maguire Co. Inc., New York	615
Manning, Maxwell & Moore Inc., Muskegon, Mich. ..... 1406 *Trolleys for overhead electric traveling cranes, electric hoists, aluminum chain blocks, lever operated hoist, portable electric hoist*	
Mansaver Industries, New Haven, Conn. ..... 1518 *Grabs*	
Markem Machine Co., Keene, N. H.	112 *Industrial marking machines*
Market Forge Co., Everett, Mass. ..... 234, 236, 238 *Single and double-faced pallet and lift trucks*	
Marsh Stencil Machine Co., Belleville, Ill.	824
Master Builders Co., Cleveland	125, 129
Mathews Conveyer Co., Ellwood City, Pa. ..... 733, 632 *Trolley, belt, roller and wheel conveyors*	
May-Fran Engineering Inc., Cleveland ..... 1301 *Conveyors and conveyor belting*	
Mechanical Handling Systems Inc., Detroit ..... 905, 909 *Wheel and roller conveyors, power belt and live roller conveyors, conveyor systems*	
Mercury Mfg. Co., Chicago	1533 *Electric and gasoline industrial tractors, electric fork lift trucks, industrial trailers*
Michigan Crane & Conveyor Co., Detroit ..... 501, 505 *Heat treat furnace loader, crane, other component products*	
Michna Systems, Chicago	425

Suppose we put the Dempster-Dumpster System right down in your plant . . . then what?



● *Well First—let's make it clear that we are furnishing you with several sizes of different designs of 26 containers to suit your materials requirements. Then bear in mind that we are delivering you only one truck-mounted Dempster-Dumpster and with your driver this one outfit picks-up, hauls and dumps all containers, about like the one shown above.*

Now, how many conventional trucks are you using for handling rubbish, scrap, raw materials, and what have you?

For several years now, one plant has been doing considerably more work with two Dempster-Dumpsters and two men than they did with five trucks and fifteen men before the Dempster-Dumpster System was installed. You can guess at the approximate savings annually.

A glance at the picture below and you get the whole story of the Dempster-Dumpster System. Never before have you been able to cut bulk materials handling costs so drastically.

One truck mounted Dempster-Dumpster handles the entire group of 26 Dempster-Dumpster containers. These big, detachable steel containers are like having 26 truck bodies for a single truck.

Any required number of Dempster-Dumpster containers are spotted at convenient materials accumulation points inside and outside your buildings. They range in sizes up to 12 cu. yds.—3 to 4 times the capacity of a regular dump truck. Materials—bulky, light, heavy, solids, rubbish and even liquids—are dumped or placed into these containers.

The truck mounted Dempster-Dumpster makes scheduled rounds, picks up each preloaded container, carries it to the point of disposal, sets it down intact or dumps the materials and returns the container for refilling. The entire operation is hydraulically controlled and handled by your truck driver.

It's as simple as we have described it. The amazing thing is the tremendous savings being made by the Dempster-Dumpster System in hundreds of leading industrial plants over the nation.

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EXHIBITOR	Booth
Midwest Precision Corp., Jackson, Mich.	1151
Mine Safety Appliance Co., Pittsburgh	1827
Mobile Industrial Equipment Co., Philadelphia *Fork lift trucks, hand trucks, industrial tires, hand pallet and electric trucks; rental and service department of lift trucks*	1816
Mobilift Corp., Portland, Oreg.	1114, 1116
Motor Generator Corp., Troy, Ohio *Battery chargers for industrial truck batteries*	1245
Motorola Communications & Electronics Inc., Chicago *Base station, mobile and portable units of 2-way radio communications equipment*	1120
Moto-Truc Co., Cleveland *Walkie type industrial trucks*	902, 1001
National Light Metals & Plastic Co., Bay City, Mich. *Loading ramps, hand trucks, barrel skids and trucks*	806
National Pallet Corp., Pittsburgh *Expendable pallets, shipping containers, wooden, double clinch pallets*	1100, 1201
National Wooden Box Assn., Washington *Nailed wooden boxes and crates, movie of nailed wooden box manufacturing process*	1202, 1204
New Equipment Digest, Cleveland	1456
Nutting Truck & Caster Co., Faribault, Minn.	1514
Ohio Hoist & Mfg. Co., Cleveland *Cranes and hoists; guards for protecting packages or loads against chain damage*	1814
Orangeville Mfg. Co., Orangeville, Pa.	410
Otis Elevator Co., New York	605
Oxy Catalyst Inc., Wayne, Pa. *Catalytic exhaust mufflers, air pollution control and waste heat recovery equipment*	922
Pallet Devices, Div. of Eberhardt Mfg. Co., St. Louis *Pallets*	611
Paltier Corp., Michigan City, Ind.	1544, 1546
Parker Sweeper Co., Springfield, Ohio	334
Penton Publishing Co., Cleveland	1456
Pittsburgh Steel Products Co., Pittsburgh *Cargo containers, bulkheads for railroad cars, factory baskets*	214, 222
Max Pollock & Co., Inc., Groton, Conn.	430
Porto-Lift Mfg. Co., Lansing, Mich.	136
Powell Pressed Steel Co., Hubbard, Ohio *Pressed steel platforms, boxes, steel pallets*	1440-1442
Powers Wire Products Co. Inc., Monroe, Mich. *Stapling machines, automatic hog ring machines*	107
Prime-Mover Co., Muscatine, Iowa	1520
Prior Products Inc., Dallas,	1801
Protectoseal Co., Chicago *Safety storage containers, oily waste cans, production containers, automatic self-closing faucets, hand transfer pumps*	406

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Pullman-Standard Car Mfg. Co., Chicago ..... RR Siding
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Quaker Rubber Corp., Philadelphia 507
Conveyor belting for handling bulk materials and packages on horizontal and inclined planes

Rack Engineering Co., Connellsville, Pa. 1508, 1510, 1512
Adjustable pallet racks and peg rack conveyors, hydraulic utility tables and work trucks

Radio Corp. of America, RCA Victor Division, Camden, N. J. .. 1250-B
Two-way mobile radio communications equipment, industrial television system, electronic metal detectors, industrial sound installation, intercom equipment

Randolph Metal Products Co., Chicago 1803
Nesting and stacking tote pans, pallet guards

Rapids-Standard Co. Inc. Grand Rapids, Mich. 225, 233, 235
Metal base industrial rubber tired wheel, heavy duty solid roller conveyor, vertical lift unit, aluminum stevedore, belt conveyor, casters, wheels, all wheel conveyor

Raymond Corp., Greene, N. Y. 1426, 1525

Ready-Power Co., Detroit 1404, 1501
Diesel-electric continuous duty power units for electric industrial trucks, diesel engine driven magnet-charger

Pressed Steel Division, Republic Steel Corp., Cleveland 1414
Steel platforms, skid and box units, pallets, tote pans

Revolvator Co., North Bergen, N. J. . 724

Richards-Wilcox Co., Aurora, Ill. 1552-1556
Overhead chain conveyor, conveyor handling pallets and boxes, combination power and free trolley pusher conveyor

Robbins & Myers Inc., Springfield, Ohio 910
Wire rope hoist, two-speed hoist, electric chain hoist, special type winches

John A. Roebling's Sons Co., Trenton, N. J. 721

Ross Carrier Co., Benton Harbor, Mich. 1103, 1105, 1107, 1109, 1111, 1113, 1115, 1117, 1119, 1121, 1123, 1125, 1127
Fork lift trucks, straddle carriers, power shovel

Rotary Lift Co., Memphis, Tenn. ... 344
Dock ramps and general display on passenger and freight elevating equipment

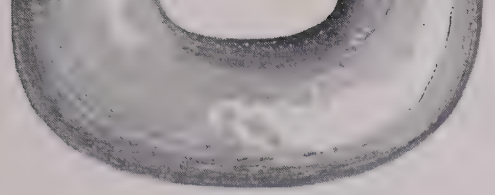
David Round & Son, Cleveland 1506, 1504
Chain, hand, power, electric, cable hoists; floor, hydraulic, portable cranes; hand powered and motorized winches; trolleys

Rowe Methods Inc., Cleveland ... 1519
Adjustable loading ramp

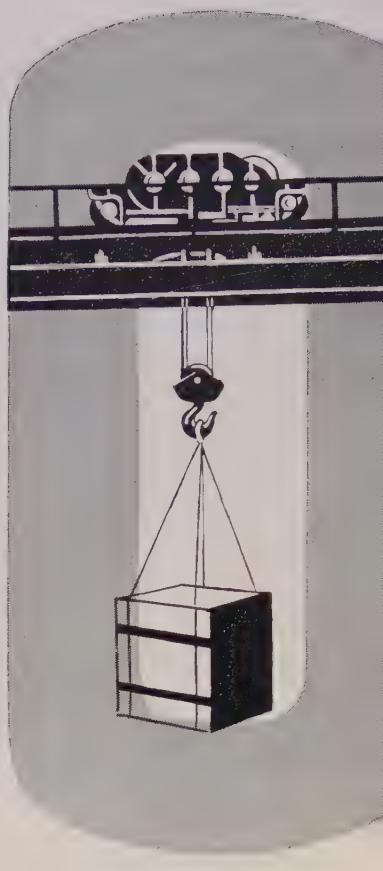
Ruger Equipment Inc., Uhrichsville, Ohio 1454, 1555
Hydraulic floor and truck mounted cranes

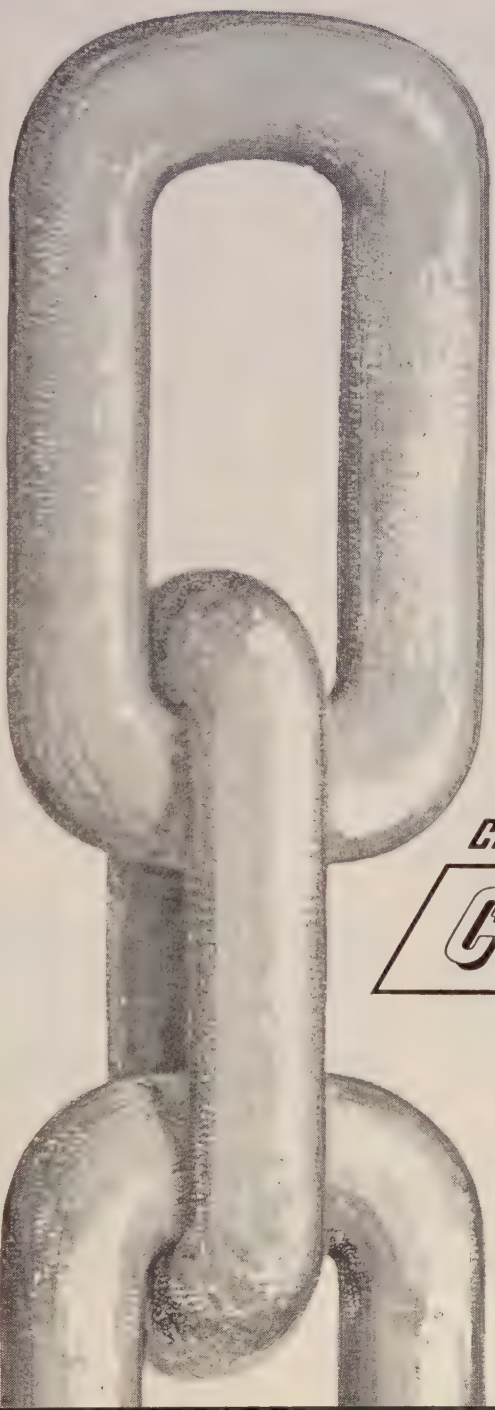
Rushlight's Inc., Portland, Oreg. ... 210
Hoist, winch, dolly

Saginaw Products Corp., Saginaw, Mich. 445
Industrial and pneumatic casters and wheels, chain hoist and cable and hose trolleys, overhead conveyor parts, gravity rollers



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5th NATIONAL MATERIALS HANDLING EXPOSITION
MAY 18-22, 1953 PHILADELPHIA

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Any rack easily accessible

Automatic Tong by HEPPENSTALL, Pittsburgh, Pa., for easy pick-up and safe carrying.

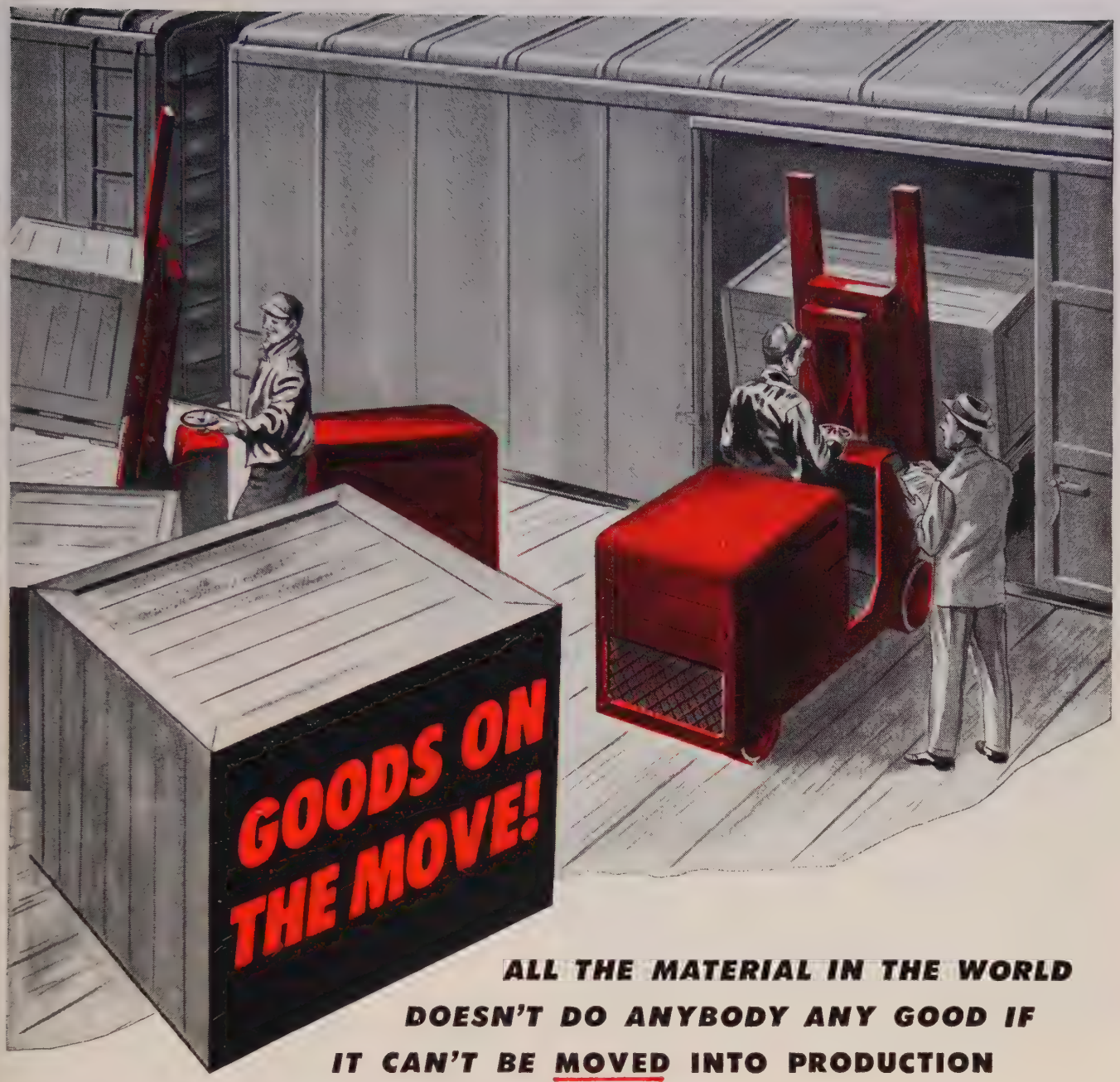


Easily placed on trucks for removal to machines not under crane.

When Ordering Always give "item" number; this will help prevent error. Write for catalog.

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EXHIBITOR	Booth
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Service Recorder Co., Cleveland *Service recorder for lift trucks*	105
Service Supply Corp., Philadelphia *Combination overhead and front end loader, tractor crane*	1006, 1010
R. T. Sheehan Co., Plymouth, Mich.	809
Signode Steel Strapping Co., Chicago	1538, 1540
Silent Hoist & Crane Co., Inc., Brooklyn, N. Y. *Mobile swing-boom crane, heavy-duty fork lift truck, car puller, barge puller*	1215, 1219
Skarnes Engineering & Supply Inc., Minneapolis	338
Spanmaster Crane Corp. of America, South Gate, Calif.	527
Spaulding Fibre Co. Inc., Tonawanda, N. Y. *Tote boxes, trays, cans, barrels, trucks from vulcanized fiber and fiberboard*	812
Speedways Conveyors Inc., Buffalo *Aluminum gravity conveyor*	704
Standard Conveyor Co., North St. Paul, Minn. *Live roller and belt conveyor units*	1530
Standard Mfg. Co., Cedar Falls, Iowa	138
Stanley Works, New Britain, Conn.	1200, 1009
Star-Kimble Motor Div., Miehle Printing Press & Mfg. Co., Bloomfield, N. J. *Running brakemotor (magnetic disk), running adjustable varying speed brush shifting motor, electric truck motor, other motors*	428
STEEL Magazine, Cleveland	1456
Steel Products Fabricators, Chicago *Pickup conveyor, power conveyor*	914
Sterling Bolt Co., Chicago	221
Stevens Appliance Truck Co., Augusta, Ga. *Appliance trucks with crawler tread, bulky appliance handler, stocking truck*	514
Stewart-Warner Corp., Chicago *Lubrication cart, trolley wheel lubricator, versatile pumps*	529, 531, 533
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Thomas Truck & Caster Co., Keokuk, Iowa *Industrial trailers, casters and wheels, wagon truck, platform trucks, barrel truck*	901
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Unit Crane and Shovel Corp., Milwaukee *Truck crane, mobile crane*	1150, 1249
United States Spring & Bumper Co., Los Angeles *Continuous powered, light capacity, overhead trolley conveyor*	433, 435
United States Steel Co., Pittsburgh	633
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Waukesha Motor Co., Waukesha, Wis.	729
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Wellington Machine Co., Wellington, Ohio *Mold and die truck, heavy-duty carton truck, drum and barrel truck, rubber tired wheels and casters*	1135
West Bend Equipment Corp., West Bend, Wis. *Hand pallet truck, hand lift trucks, portable elevators, warehouse trucks, sheet steel feeding tables*	624
Westinghouse Electric Corp., Pittsburgh	1333-A
Whiting Corp., Harvey, Ill. *Stacker crane, railroad car spotter*	1138, 1140
Whitney Chain Co., Hartford, Conn. *Roller chain, conveyor chain and silent chain drives for mechanical power transmission and conveying*	123
Wilkie Co., Philadelphia *Wheel and roller telescopic conveyors, curve used in carloading in conjunction with the conveyors*	725
Williford Mfg. Co., Memphis, Tenn. *Lifetime pallet*	405
Wilshire Power Sweeper Co., Glendale, Calif.	504
Yale & Towne Mfg. Co., Philadelphia *Gasoline, diesel, electric fork trucks, electric platform trucks, electric crane trucks, motorized hand trucks, pallet and platform hand trucks, hand and electric hoists, attachments for trucks*	248, 249, Stage

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• This rapidly drying, easily removable dark solvent solution produces a dry asphaltic type of film which can be handled after 4 hours' drying time.

Rust Veto 344 can be used on steel, brass, aluminum or copper; wipes off readily with solvent soaked cloth. Intended for outdoor storage protection, it will withstand 30 cycles in 100° humidity—ultra violet light test.

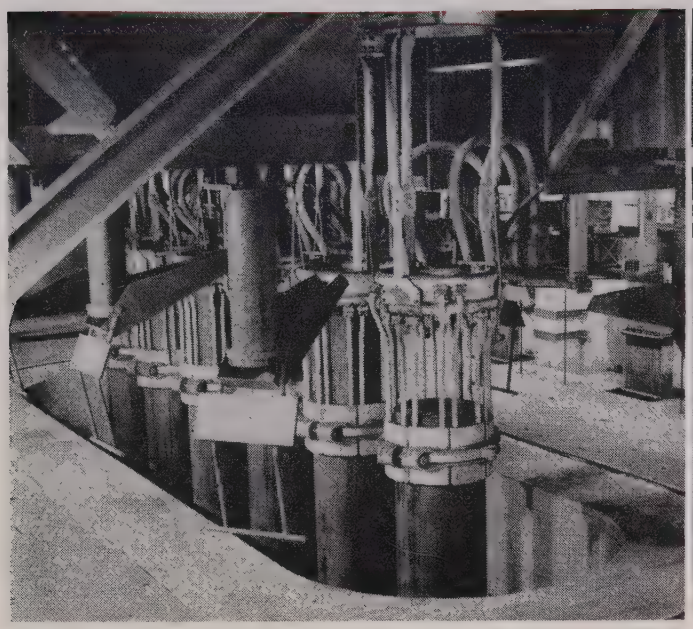
For outdoor storage, Rust Veto 344 gives you full protection for long periods. Get latest bulletin from your Houghton Man, or write to E. F. Houghton & Co., Philadelphia 33, Pa.

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Ready to give you on-the-job service . . .



This six-electrode in-line electric furnace is typical of the kind that are adaptable to iron ore reduction. The results obtained in working with it are encouraging

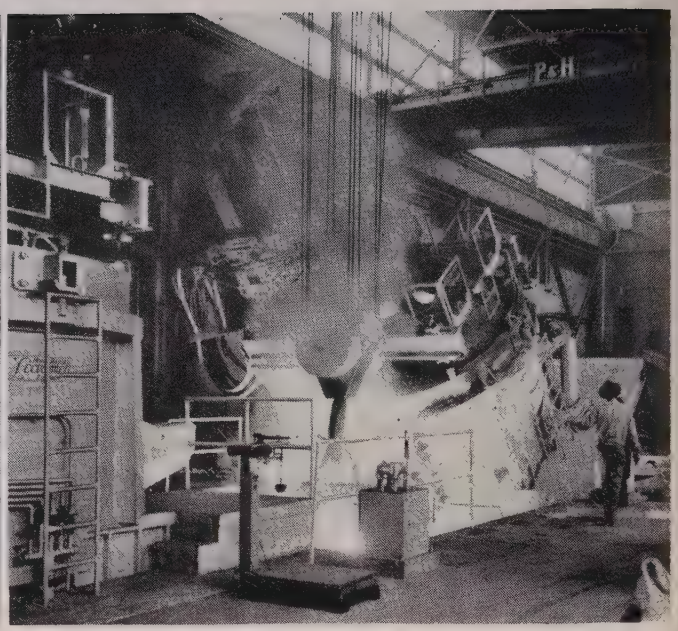


Photo shows two 20-ton steel refining furnaces arranged so that both use a common pouring pit. Flexibility of operation is a big advantage in this type of processing

Electric Ore Smelting Passes Tests

Possibilities of making steel from ore in the arc furnace grow as experimental data points to operating advantages. Could conceivably lead to 5-day week in the mills

By H. S. NEWHALL
Electrothermic Division
Pittsburgh Lectromelt Furnace Corp.
Pittsburgh

THREE MAJOR FACTORS are helping to promote interest in making steel from ore in a duplex electric furnace operation. First, installation is cheaper per ton of steel produced; electric furnace combinations are more flexible in operation; and, finally, there is more electric power available in more places at reasonable cost.

First and third reasons are self explanatory. Flexibility involves the matter of quick shutdowns and fast startups and an ability to operate on a spasmodic schedule, perhaps even a five-day week. Operating flexibility permits quick change from high-silicon to low-silicon pig; in the case of a refining furnace on a 2 or 3-hour cycle, a different analysis can be made each heat. This flexibility looks good to a small manufacturer who cannot afford a blast furnace plant.

What's Being Done — There are approximately fifty furnaces operating in the Eastern Hemisphere which take ore, carbonaceous reducer and fluxes to produce a 3.5 per cent carbon iron in electric furnaces.

The ore used is usually lump or sintered-lump product, and selection of reducer is carefully made to prevent segregation in the furnace. Charge is almost always taken into the furnace cold.

High cost of reducing material together with low cost of power in certain locations in the world has made electric furnace operation feasible. These conditions do not exist in most of the major steel producing sections of the world, so the blast furnace is the biggest producer of intermediate product for steel. In Europe the refining step with electric furnace usually includes the use of an intermediate converter.

Conflicting Opinions — In the opinion of many metallurgists, the electric furnace operates essentially with reducing atmosphere, the open hearth with oxidizing atmosphere. Therefore, the electric furnace is held to be the proper tool for melting cold charges, whereas the open hearth should be used where oxidizing conditions are essential to the end product.

However, operations are being carried out in electric furnaces today that were considered impracticable several years ago. Some attempts at producing steel from 100 per cent hot metal, or in lesser amounts, have been successful. It must be admitted though, that much additional work must be done before it is commercially possible.

It Works — During the War, a

REFRACTORIES— Melting... Cutting Out...?

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Stock NATIONAL Carbon Brick and Shapes for Low-Cost Maintenance

"National" carbon blast furnace linings, of course. But HAVE YOU THOUGHT ABOUT CARBON for the other hot-spots where ordinary refractories conk out from high temperatures or slag-cutting? CARBON, the refractory, has no melting point and low affinity to molten metal and dross. In fact, even in *unfavorable* atmospheres, CARBON frequently outperforms other refractories on a length-of-life or cost-of-replacement basis.

Here are some of the places where "National" carbon and graphite can follow up their good work in the furnace...improve production, deflate maintenance cost, increase product quality and better the safety of equipment and personnel.

ON NEW APPLICATIONS OF CARBON, CONSULT NATIONAL CARBON'S ENGINEERS FOR PROPER GRADE AND DESIGN.

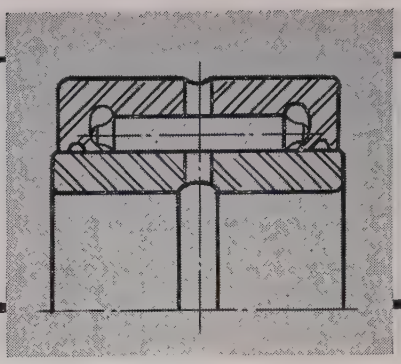
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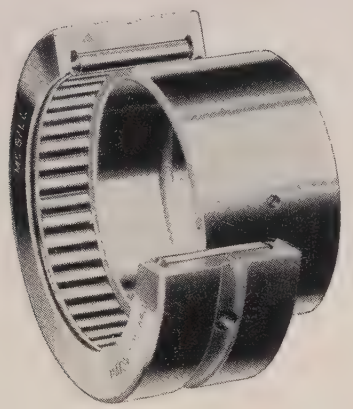
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A bearing design of simplified construction reduces internal wear

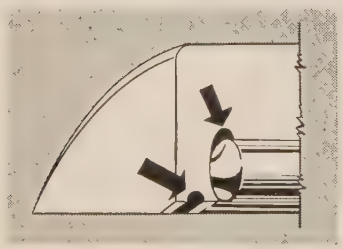


The performance efficiency and life expectancy of anti-friction bearings depends to a great extent on the ability of the bearing designers to hold internal wear to a minimum. They have found that wear can be materially lessened by reducing the number of bearing parts subjected to wear. In the case of MULTIROL SE Series roller bearings all parts have been eliminated except the anti-friction essentials of load carrying rollers and contacting races. Loose or welded in retaining rings and cages ordinarily found in roller bearings of this type have been discarded in the exclusive MULTIROL design.



Here rollers are retained by rolled over lips on end shoulders that are solid extended sections of the outer race. Cages are not required and other delicate parts that may wear, warp or break loose in mounting or in service are not needed. Numerous other advantages accrue from this MULTIROL bearing construction in addition to reduced internal wear and longer bearing life.

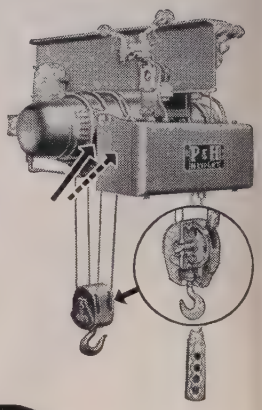
Lubrication Advantages

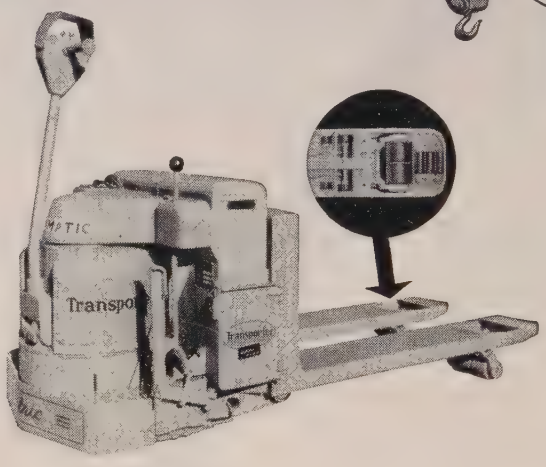


Important among these is the extra protection against destructive foreign particles provided in SE series bearings by a lubricant retaining groove, built into the inside diameter surface of the roller retaining end shoulder. The ring of lubricant held in this groove acts against the inner ring O. D., increasing the sealing effect of the precision tolerances between these shoulders and the inner race. Notice, too, the groove above the roller ends. Acting as a lubricant reservoir, this groove provides MULTIROL SE series bearings with an extra margin of protection against neglected or delayed lubrication.

Typical Performance

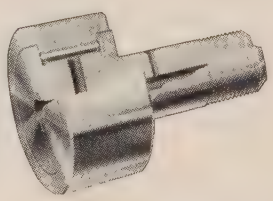
Harnishfeger P&H Hevi-Lift electric hoists carry up to 15,000 pound loads on MULTIROL SE series bearings. Their extra capacity and precision with ruggedness help reduce necessary radial bearing space in the upper and twin bottom sheaves. Two additional SE bearings add smooth efficient and dependable performance in the hoist transmissions.



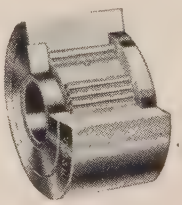


The Automatic Transportation Company's Transporter uses eight Multirol SE Series bearings in the four rear wheels to carry 6000 pound capacity loads easily and freely. Wheels are mounted dual on each fork and two bearings with a center spacer support each wheel. These small but rugged bearings accommodate a large shaft with a comparatively small O. D. and materially reduce starting and rolling friction for finger-tip maneuverability of this heavy duty material handler.

Other McGILL® Bearings



MULTIROL CF



MULTIROL CYR

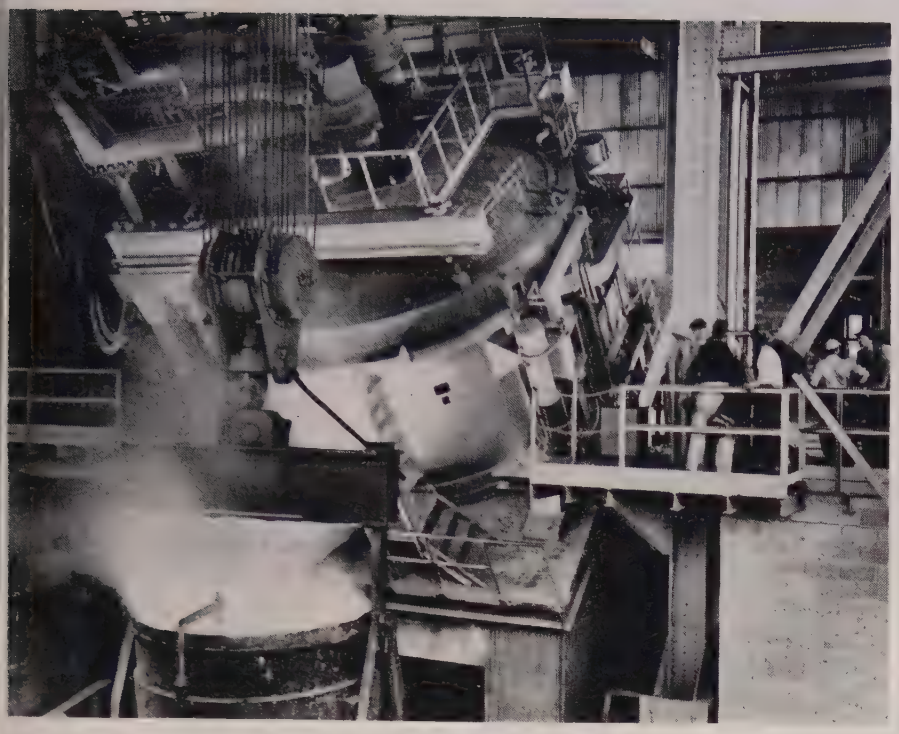


GUIDEROL CT

A new 140-page Bearing Reference Guide complete with 30 pages of vital engineering data has just been released by the McGill Manufacturing Company. It has the full story on the advantages of Multirol SE Bearings as well as information on the Multirol CF and CYR and Guiderol Bearings. Send now for your copy of McGill Catalog No. 52.

McGILL® — Precision Bearings

McGILL MANUFACTURING COMPANY, INC.
301 N. Lafayette Street, Valparaiso, Indiana



Banking a blast furnace or open hearth over weekends is out of the question. However, it is possible for the electric to adjust to such a cycle

small eastern steel mill took liquid iron running at about 3.5 per cent carbon and reduced this to 20 points of carbon in 1½ hours with additions of iron ore. This was done in a 50-ton furnace, with ore and lime placed on the bottom and hot metal poured on top, while holding temperatures down so that the reaction did not become violent.

Since then this has been followed up by various other companies, but not on the practice of 100 per cent hot metal charge. Up to 50 per cent hot metal charges proved very successful as compared to the open hearth. One heat, taking 36.4 per cent hot metal, had a power consumption of approximately 500 kwh per ton. Ore, limestone, and scrap were introduced at the start and when about 90 per cent molten, the hot metal was introduced. Temperature control at this point is very vital.

It must be understood that part of this work was developed to use blast furnace hot metal, which contains higher carbon than that normally in the electric pig iron smelter. Producing lower carbon iron as an intermediate product from electric furnaces should enable greater control of the mixing reaction.

New Plants—At the present time a plant is being built based on charging 60 per cent hot metal into the electric furnace with 40 per cent scrap, a normal open-hearth charge. Another company is planning their expansion on the basis of blast furnace, converter and electric furnace, depending on the converter to bring down the carbon in the charge.

From this you can see that we are in the process of developing proper practice for handling hot metal in the arc furnace and we should have some definite answers by the end of 1954. Use of 100 per cent hot metal charge is not something to be speculated about, but can actually be done provided proper care and precautions are taken in outlining the steps of the process.

Intermediate Product — Producing an iron lower in carbon than normal pig iron is a distinct possibility. In Canada today, they are producing iron with 1-1½ per cent carbon as a by-product in a large electric furnace. Steps in this direction, of course, make the load on refining furnaces a great deal easier. Quebec Metallurgical Industries Ltd. mixes silicon in the form of ferro-silicon, silicon-aluminum, or alsifer, with material such as wood waste, coal, screenings, or coke breeze to produce a low-carbon iron which takes only minor refining to make finished steel. Carbon does the bulk of reduction, but the silicon (20 to 30 per cent of the reducing power) finishes the reduction without excess carbon being added.

Slag Problem—In this operation there is a high melting point low-carbon metal with a lower temperature melting point slag. On a batch type operation, this slag can be super-heated to fluidize the iron so that it can either be removed to another furnace for refining, or the slag removed and refining carried out in the same furnace.

However, I prefer to see the two-furnace operation to avoid contamination. It presents an interesting problem of control and the Quebec people are continuing their investigations in turning this into a continuous or semibatch operation that can be commercial in relation to other methods. The future looks very promising, even on the batch operation.

Charge Pre-Treatment — A great deal of activity is being carried on throughout the world on the pre-treatment of the charge going into an electric smelter. This pre-treatment may consist of drying, sintering, pre-heating, or partial reduction.

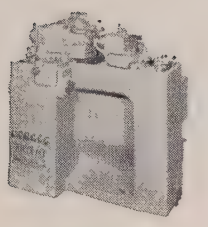
Pre-drying of ores has been carried out for a number of years in order to make use of cheaper fuel for removal of the moisture. Some of these have included use of furnace gases for this purpose.

Sintering has also been used for years. However, in most cases this sinter is cold by the time it is introduced as a mixed charge into the furnace so that the advantage of the heat in the sintering operation has been lost. The goal at which most people in pre-treatment aim is the introduction into furnace of a complete charge material at an elevated temperature and with partial reduction. Along these lines, work is now being carried out using a rotary kiln in direct connection with an electric smelting furnace.

No matter what the system, though, to be successful in this country it will have to produce large quantities at low costs.

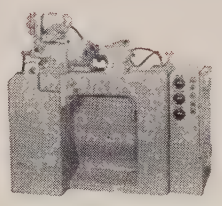
From a paper delivered at the Electrochemical Society Meeting, New York.

bryant
internal grinding



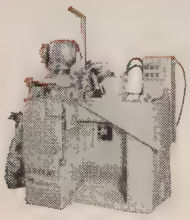
no. 1309-W

Finishes 2 bores and a taper straight and concentric. 2 wheelheads are used on this semi-automatic. Max. traverse stroke, 6". Max. grinding length, 3½".



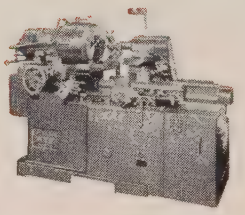
no. 1109

For high production of small bores where accuracy of size and finish are required. Max. traverse stroke, 6". Max. grinding length, 3½".



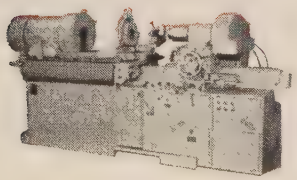
no. 2209

For precision and high production grinding of ball bearing races, gears, rolls, bushings, etc. Max. traverse stroke, 6". Max. grinding length, ¾".



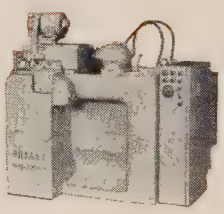
no. 1116

A general purpose hole grinder for tool room, small shop, or general production. Maximum traverse stroke, 20". Maximum grinding length, 8".



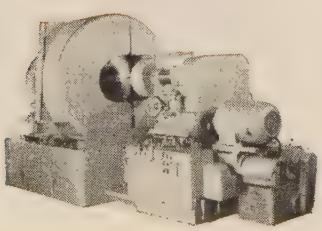
no. 1416

Specially designed for grinding bores in long work, such as machine tool spindles. Maximum traverse stroke, 20". Maximum grinding length, 8".



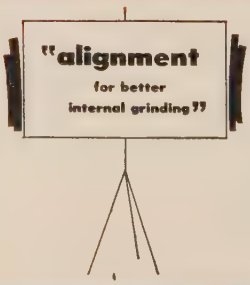
no. 1209

A fully automatic, high production machine for small and medium bore grinding. Max. traverse stroke, 6". Max. grinding length, 3".

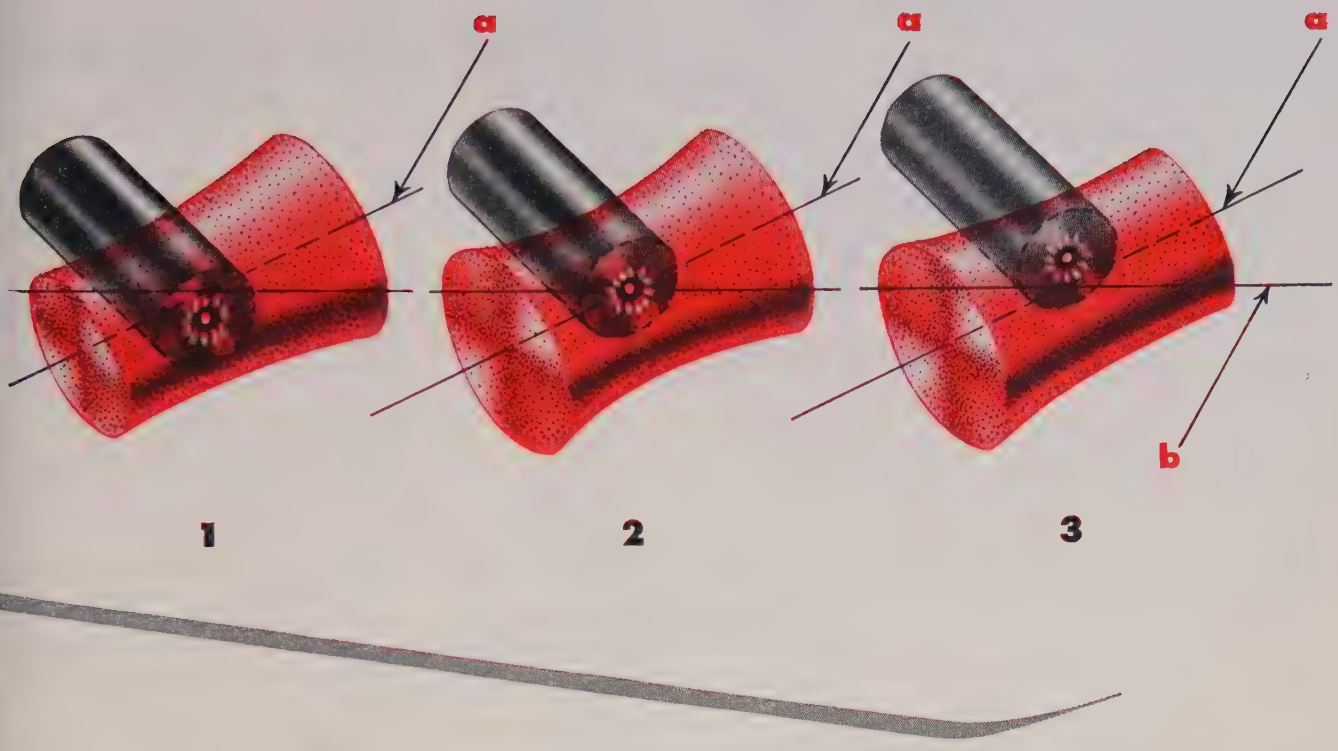


no. 1460

For production or single piece hole grinding on parts up to 60" diameter. Max. traverse stroke, 21". Max. grinding length, 16".



"Alignment for Better Internal Grinding", a new, sound color moving picture is available for free showing to engineering groups. Write for descriptive booking form.



USERS of internal grinders generally believe that once the grinding wheel passes the diamond, the form of the wheel will be a perfect cylinder. If the wheelhead is tipped so that its center line is not parallel with the motion of the longitudinal ways, the wheel cannot be trued to a perfect cylinder. In our illustration each wheel is tipped as it passes the diamond. Even though the diamond describes a straight line across the surface of the tipped wheel, the wheel will not be trued to a perfect cylinder. This is because the wheel is not being moved on a path along its own center line. When the wheel is tipped so that its center line "a" does not coincide with its direction of travel "b" as the wheel passes the diamond, an apparent taper "1" or "3", or an hour-glass "2" will be generated on the wheel. The vertical position of the diamond determines which one of these three forms will be produced on a tipped wheel. In this case we have two variables; that is, the wheel axis "a" may not coincide with its direction of travel "b", and the diamond may be above or below center.

Taper due to tipping of the wheel can be identified by raising or lowering the diamond. If the wheel is tapered as in "1" and after raising the diamond the form changes to "2" and again, after raising the diamond, the taper changes to "3", the front of the wheel (left end in illustration) is low and the wheel is tipped down. On the other hand, if the small diameter of the taper moves from right to left on the wheel as the diamond is progressively raised, the front of the wheel is tipped up.

An error in wheel form similar to those illustrated cannot produce a good hole either for size or shape, since there can be no straight line of contact for the full length of the wheel and the full length of the work as the wheel traverses. Furthermore, this distortion in the form of the wheel cannot be eliminated by simply turning the workhead. The remedy is to correct the alignment by bringing the wheel center line parallel with the wheel path (direction of wheel travel) and to the same height as the workhead center line, and setting the diamond in the plane established by the wheelhead and workhead center lines.

Bryant Chucking Grinder Company
Springfield, Vermont, U. S. A.

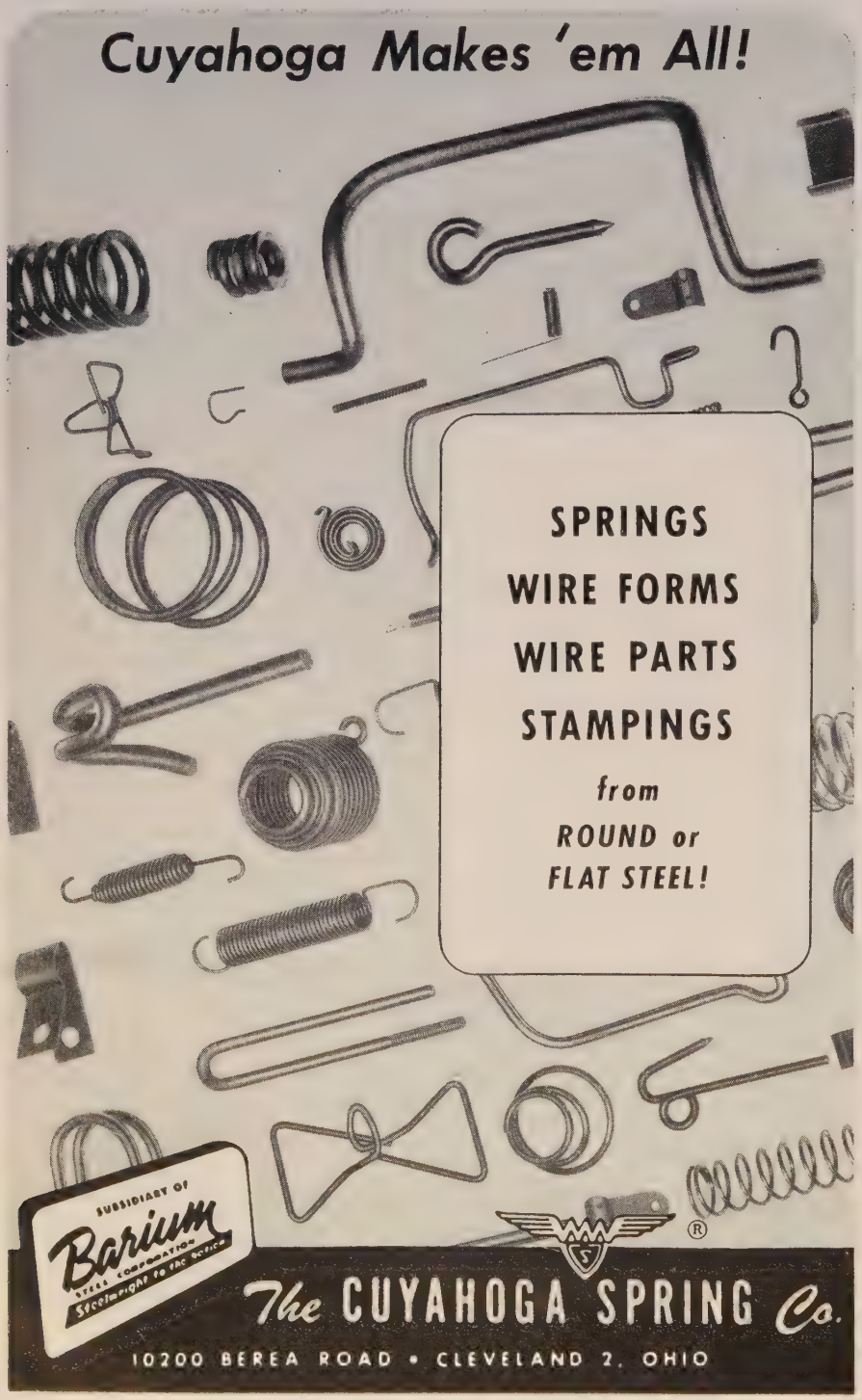
Internal grinders • Internal & External thread gages

Big Tractor-Dozer for Engineers

A massive tractor bulldozer was delivered recently to the U. S. Corps of Engineers from Allis-Chalmers' Cedar Rapids, Iowa, Works. This four-wheel rubber-tired tractor, designed for operating scraper equipment and as a prime mover, was built for military use under a development contract with the Engineer Research and Development Laboratory, Ft. Belvoir, Va.

Construction of the "Bull Moose", as it is called, was started in March, 1952, and completed in November. Since then it has been undergoing a variety of performance tests.

Vehicle is 11 feet, 7½ inches high; 22 feet, 9 inches long; and weighs 51,300 pounds with the dozer and cable control unit. The dozer blade itself is 11 feet wide and 4 feet high. The relatively low center of gravity and tremendous size gives the machine unusual stability. The unit has been designed to travel at a top speed of 25 miles an hour pulling a 65,000-pound towed load.



CALENDAR OF MEETINGS

May 11-13, Rail Steel Bar Association: Annual meeting, The Greenbrier, White Sulphur Springs, W. Va. Association address: 38 S. Dearborn St., Chicago 3. Secretary: W. H. Jacobs.

May 11-14, American Mining Congress: Annual meeting and exposition, Public Auditorium, Cleveland. Congress address: 1102 Ring Bldg., Washington 6. Executive vice president: Julian D. Conover.

May 14, Conference, Instrumentation in Water, Sewage and Industrial Waste Treatment: Manhattan College, New York. Information: Joseph McCabe, Civil Engineering Dept., Manhattan College.

May 14-15, National Association of Sheet Metal Distributors: Spring meeting, Deshler-Wallick hotel, Columbus, O. Association address: 1900 Arch St., Philadelphia 3. Secretary: Thomas A. Fernley Jr.

May 14-15, Society for Applied Spectroscopy: Annual meeting, Hotel New Yorker, New York. Information: G. L. Crumrine, North American Smelting Co., Marine Terminal, Wilmington, Del.

May 14-16, American Coal Sales Association: Annual spring meeting, The Greenbrier, White Sulphur Springs, W. Va. Association address: 1625 Eye St. NW, Washington. Executive vice president: W. W. Bayfield.

May 14-16, American Institute of Mining & Metallurgical Engineers: Pacific Northwest metals and minerals conference, Hotel Benjamin Franklin, Seattle. Institute address: 29 W. 39th St., New York 18.

May 18-19, National Fluid Power Association: Organization meeting, Bedford Springs hotel, Bedford Springs, Pa. Association address: 1618 Orrington Ave., Evanston, Ill. Temporary executive secretary: Barrett Rogers.

May 18-19, Association of Iron & Steel Engineers: Spring meeting, Hotel Statler, Buffalo, N. Y. Association address: 1010 Empire Bldg., Pittsburgh. Secretary: T. J. Ess.

May 18-20, Metal Treating Institute: Annual spring meeting, Hotel Shamrock, Houston. Institute address: 271 North Ave., New Rochelle, N. Y.

May 18-20, Industrial Furnace Manufacturers Association: Annual meeting, The Homestead, Hot Springs, Va. Association address: 420 Lexington Ave., New York.

May 18-22, Material Handling Conference and Exposition: Convention Hall, Philadelphia. Information: Banner & Greif, 250 W. 57th St., New York 19.

May 18-22, Conference, Cam Design and Tool Selection: Rochester Institute of Technology, Rochester, N. Y. Information: Robert D. Pease, associate director, RIT.

May 20-21, Detroit Chapter, Society Advancement of Management: Annual management clinic, Rackham Memorial Bldg., Detroit. Information: Jack E. Steinhelper, Kelvinator Corp., Detroit 32.

May 20-22, Gas Appliance Manufacturers Association: Annual meeting, The Greenbrier, White Sulphur Springs, W. Va. Association address: 60 E. 42nd St., New York 17. Secretary: H. Leigh Whitelaw.

May 20-22, Society for Experimental Stress Analysis: Spring meeting, Hotel Schroeder, Milwaukee. Society address: Box 168, Cambridge 39, Mass. Secretary-treasurer: W. M. Murray.

May 21-22, National Industrial Conference Board: General session and directors meeting, Waldorf-Astoria hotel, New York. Board address: 247 Park Ave., New York. Secretary: Clyde L. Rogers.

May 24-26, American Steel Warehouse Association: Annual meeting, Hotel Shoreham, Washington. Association address: 442 Terminal Tower, Cleveland. Secretary: Walter S. Doxsey.

May 24-27, Copper & Brass Research Association: Annual meeting, The Homestead, Hot Springs, Va. Association address: 420 Lexington Ave., New York 17. Secretary: B. B. Caddle.

May 24-27, National Association of Purchasing Agents: Annual meeting, Hotel Statler, Los Angeles. Association address: 11 Park Place, New York 7. Secretary: George L. Renard.

RADIOGRAPHY prevents waste



Radiograph of an iron casting for a reciprocating ram.

when a $2 casting gets a $375 treatment

This is a casting for a reciprocating ram. It is to be machined and hand scraped to a final flatness of less than .0001 inch. Should porosity show up during machining, the cost of work done and heat treatment is wasted. The part must be scrapped, not scraped.

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This is another example of the savings possible through radiography.

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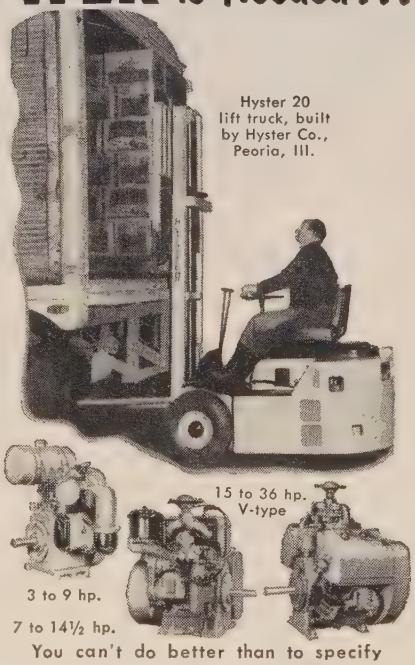
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May 24-28, Scientific Apparatus Makers Association: Annual meeting, The Greenbrier, White Sulphur Springs, W. Va. Association address: 20 N. Wacker Drive, Chicago 6. Executive vice-president: Kenneth B. Anderson.

May 24-28, National Industrial Service Association: Annual convention, Hotel Statler, New York. Association address: 818 Olive St., St. Louis 1. Executive secretary: Fred B. Whipperman.

May 25-27, Industrial Diamond Association of America Inc.: Annual meeting, Edgewater Beach hotel, Chicago. Association address: 124 E. 40th St., New York 16. Secretary: Athos D. Leveridge.

May 26-27, Electric Heating Committee and Michigan Section, AIEE: Conference, Detroit-Leland Hotel, Detroit. Institute address: 33 W. 39th St., New York 18. Information: W. C. Rudd.

May 26-29, American Leather Belting Association: Spring meeting, Skytop, Pa. Association address: 320 Broadway, New York 7. Secretary: E. R. Rath.

May 27-28, American Iron & Steel Institute: Annual meeting, Waldorf-Astoria hotel, New York. Institute address: 350 Fifth Ave., New York 1. Meeting director: Frank Ragland.

May 27-29, American Society for Quality Control: Annual meeting and exhibit, Convention Hall, Philadelphia. Society address: 70 E. 45th St., New York 17. Secretary: Edward B. Haden.

May 31-June 3, American Gear Manufacturers Association: Annual meeting, The Homestead, Hot Springs, Va. Association address: 302 Empire Bldg., Pittsburgh 22. Secretary: John C. Sears.

June 1-13, National Metal Trades Association: Plant management conference, Houghton Lake, Prudenville, Mich. Association address: 549 W. Randolph St., Chicago. Secretary: Louie W. Silvis.

June 7-12, Society of Automotive Engineers: Annual summer meeting, Hotels Ambassador and Ritz-Carlton, Atlantic City, N. J. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.

June 8-9, Malleable Founders Society: Annual spring meeting, The Homestead, Hot Springs, Va. Society address: 1800 Union Commerce Bldg., Cleveland. Secretary: Lowell D. Ryan.

June 9-12, National District Heating Association: Annual meeting, Hotel Lookout Mountain, Chattanooga, Tenn. Association address: 827 N. Euclid Ave., Pittsburgh 6. Secretary-treasurer: John F. Collins Jr.

June 14-19, National Association of Cost Accountants: Annual meeting, Hotel Statler, Los Angeles. Association address: 505 Park Ave., New York 22. Secretary: Arthur B. Gunnarson.

June 15-18, Radio-Television Manufacturers Association: Annual meeting, Palmer House, Chicago. Association address: 777 14th St. NW, Washington 5. Secretary: James D. Secrest.

June 15-18, American Electroplaters' Society: Annual meeting, Benjamin Franklin hotel, Philadelphia. Society address: 445 Broad St., Newark, N. J. Secretary: D. Gordon Foulke.

June 15-19, Basic Materials Conference and Exposition: Grand Central Palace, New York. Information: Banner & Greif, New York 19.

June 15-19, American Institute of Electrical Engineers: Summer general meeting, Chalfonte-Haddon Hall, Atlantic City, N. J. Institute address: 33 W. 39th St., New York 18. Secretary: H. H. Henline.

June 16-19, American Welding Society: National spring technical meeting & welding and allied industry exposition, Shamrock Hotel and Hall of Exhibits, Houston. Society address: 33 W. 39th St., New York 18. Secretary: J. G. Magrath.

June 22-25, National Industrial Advertisers Association: Annual meeting, William Penn hotel, Pittsburgh. Association address: 1776 Broadway, New York. Executive secretary: Blaine G. Wiley.

June 28-30, Alloy Casting Institute: Annual meeting, The Homestead, Hot Springs, Va. Institute address: 32 Third Ave., Mineola, N. Y. Secretary: E. A. Schoefer.

June 29-July 3, American Society for Testing Materials: Annual meeting, Chalfonte-Haddon Hall, Atlantic City N. J. Society address: 1916 Race St., Philadelphia. Secretary: Robert L. Painter.



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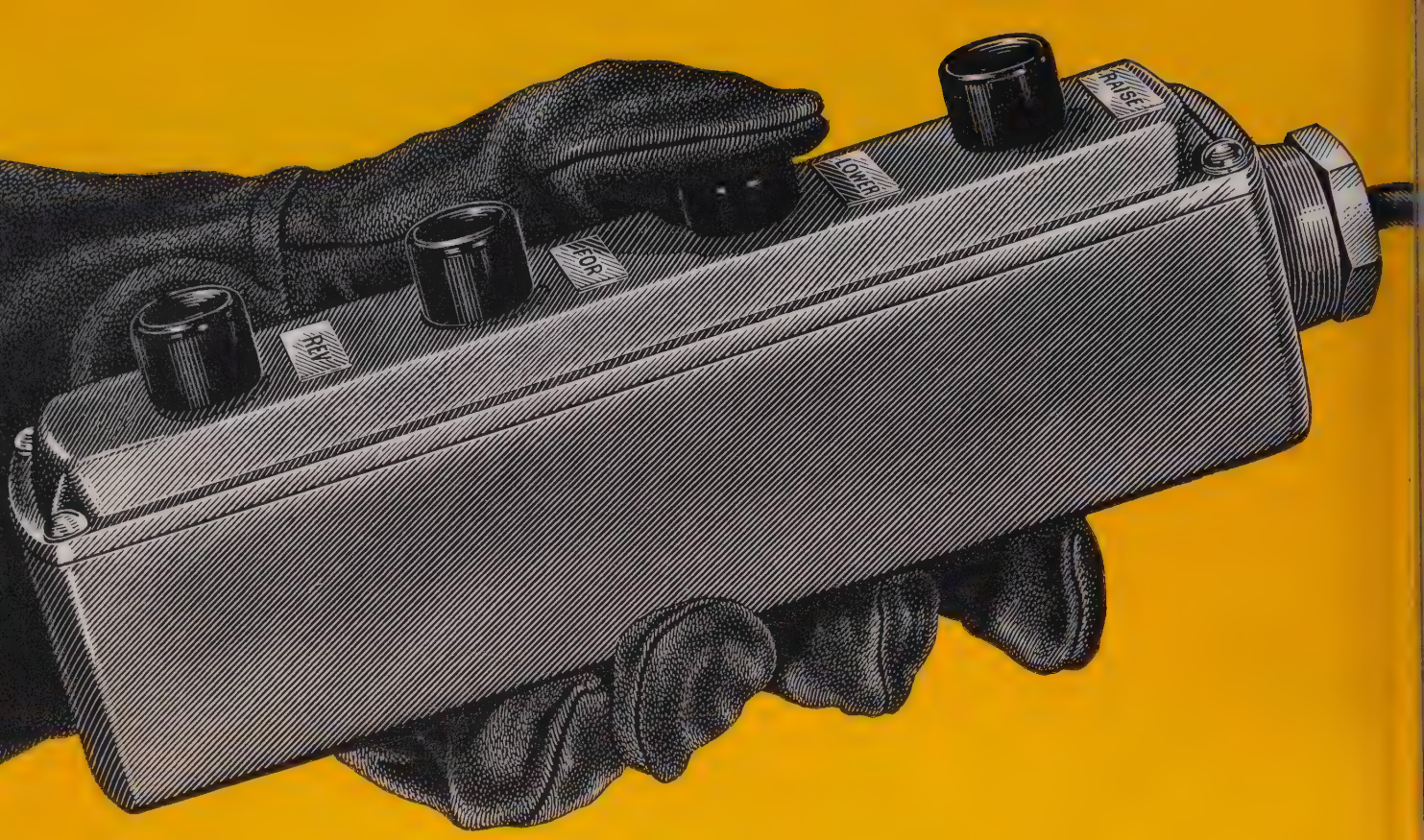
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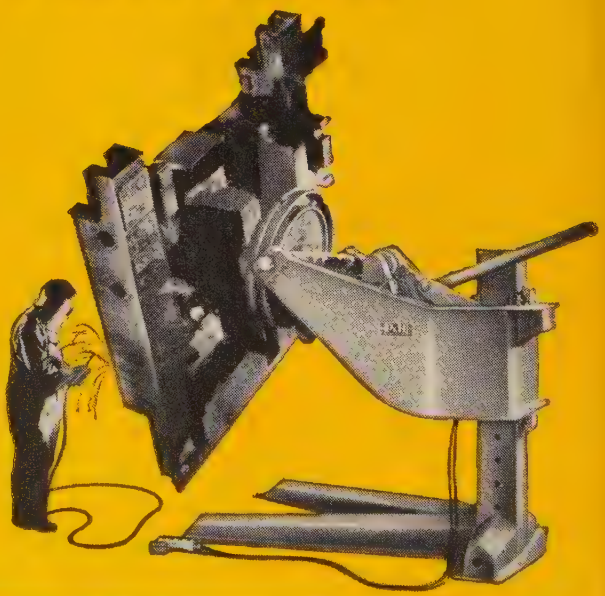


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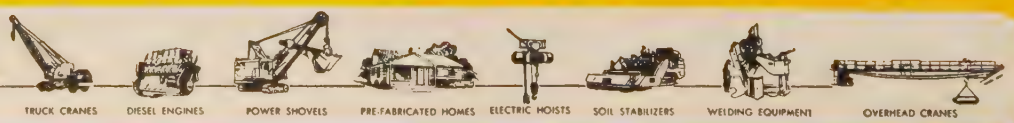
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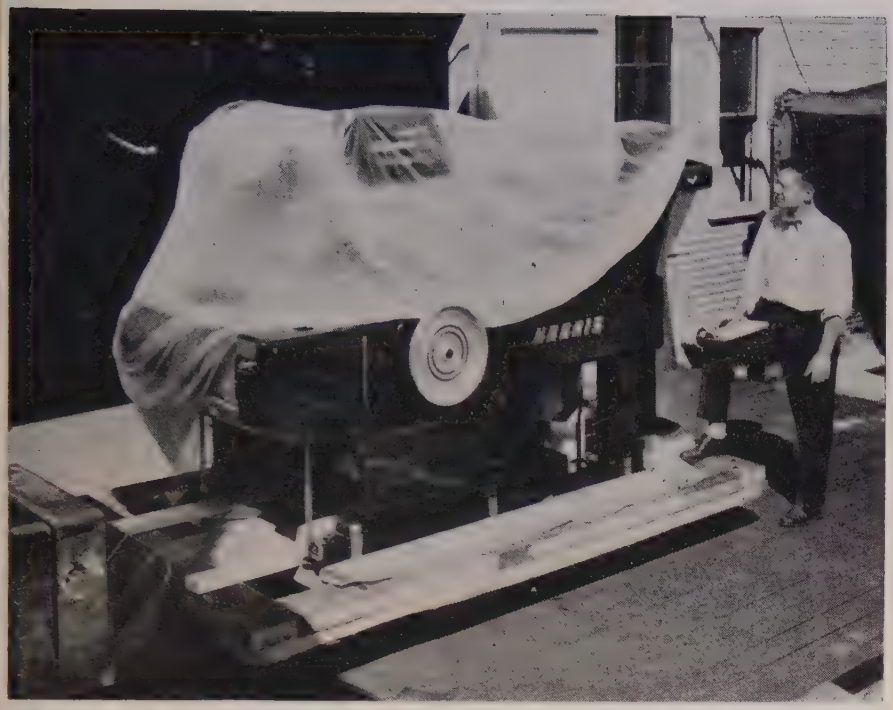


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Horizontal broaching machines for automatic broaching of external scallops or slots on different types of jet engine rings, have been developed by Colonial Broach Co., Detroit.

Machines are basically standard 10-ton, 60-inch and 10-ton, 90-inch stroke horizontal broaching machines. The 10-ton, 60-inch model broaches three scallops with each pass of the ram. The 10-ton, 90-inch broaches a single dovetail slot with each stroke. Fully automatic, the work shuttles into the cut and the ram starts. At the completion of the stroke, the fixture recedes away from the broach cut, and the ram returns to starting position.

Part is then automatically indexed one increment, and the process is automatically repeated until all slots or scallops are completed. Then the fixture automatically recedes to loading position. Pneumatic or mechanical ejection for the finished part is optional on the machines.

Hydraulically actuated shuttle movement, which slides on the base using box type square gibs, is mounted low to allow mounting of large diameter work piece. Positive mechanical locking is provided to secure work in broaching position.

Hot-Cold Isotopes Cataloged

A new catalog of isotopes, both radioactive and stable, produced by Oak Ridge National Laboratory, Oak Ridge, Tenn. is now available. The catalog replaces a previous edition published by the Atomic Energy Commission in March, 1951.

More than 100 radioactive and 175 stable isotopes are listed in the new catalog, together with prices and descriptive material. Prices range from as low as $5.00 per curie for radioactive cobalt (in large quantities) to $5.00 a microcurie for the radioactive chlorine product.

The catalog—at $1.00 per copy—or information about ORNL-produced radioisotopes, may be obtained by writing to Carbide and Carbon Chemicals Co., Oak Ridge National Laboratory, Radioisotope Sales Dept., P. O. Box P, Oak Ridge, Tenn.

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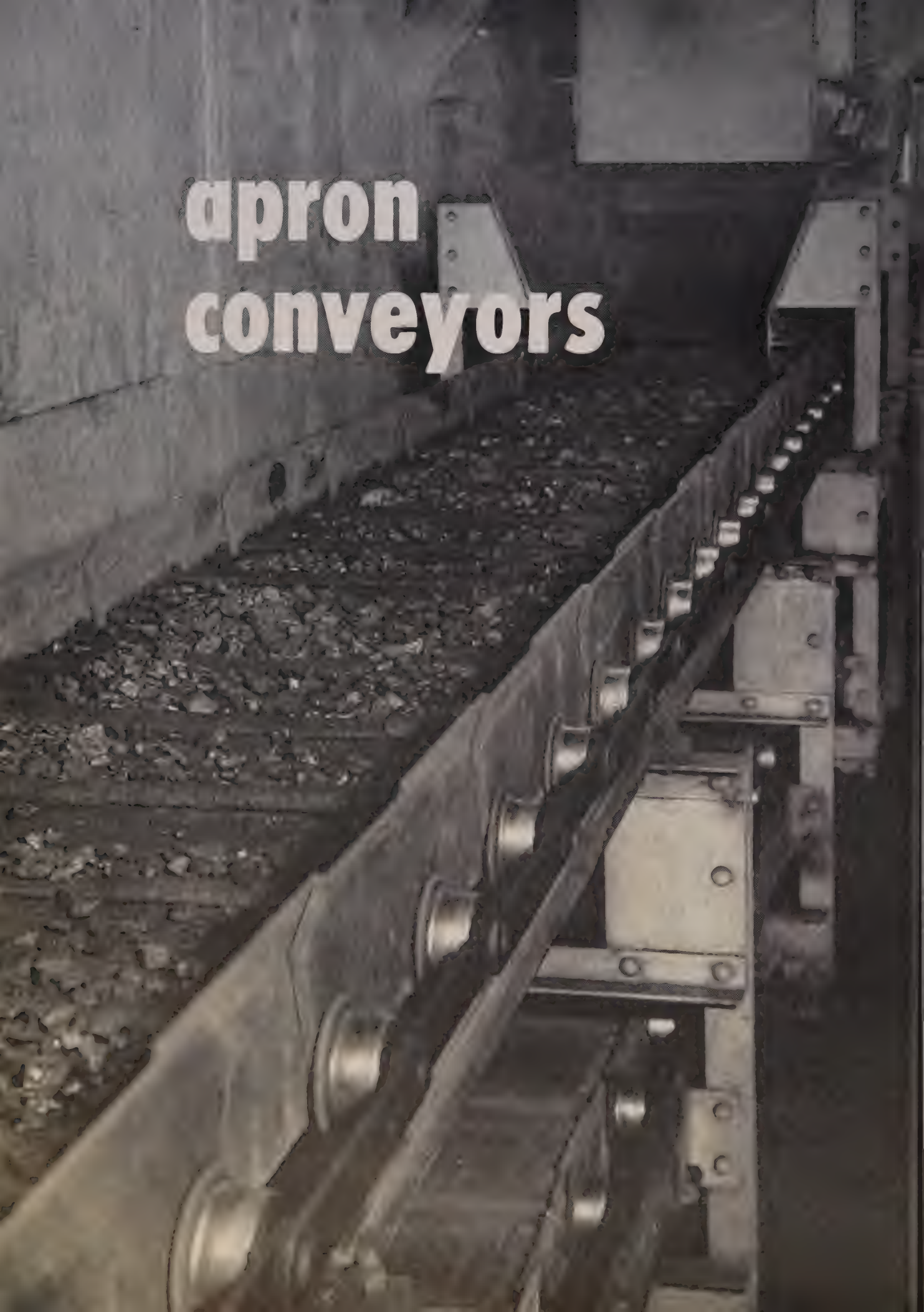
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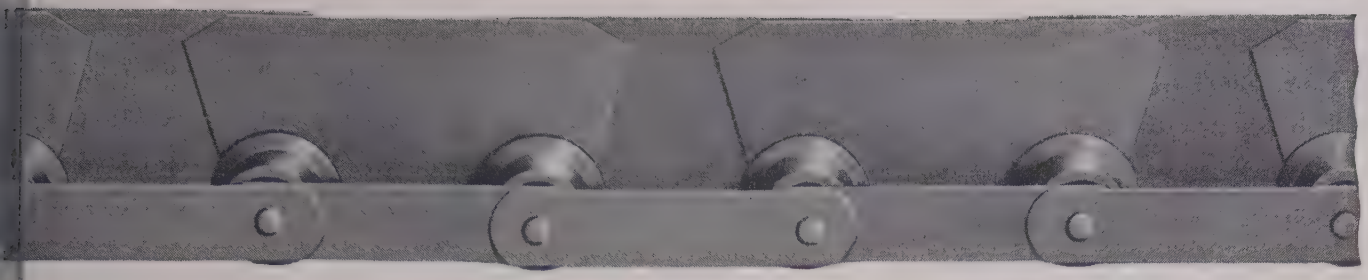
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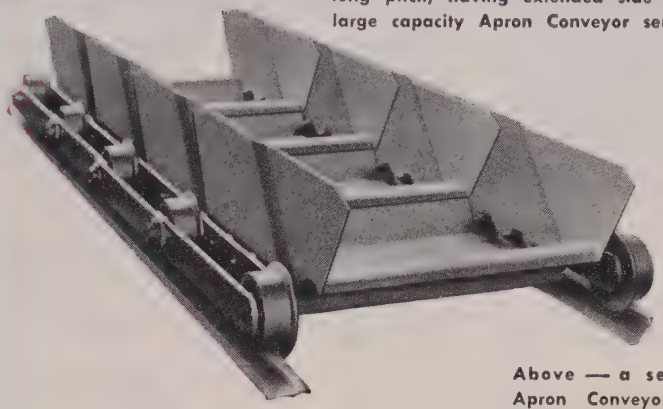
A section of Steel Thimble Roller Chain with long pitch, having extended side bars for large capacity Apron Conveyor service.

RUGGED CONVEYORS

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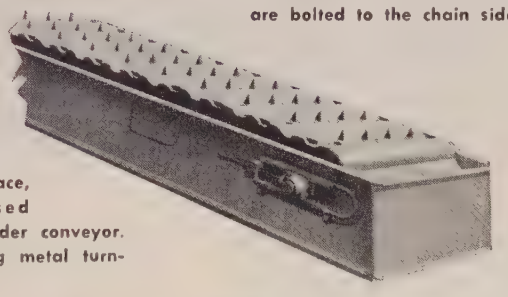
Coal . . . Coke . . . Crushed Stone . . . Burnt Lime . . . Hot Sand from Shake-out . . . Castings

Inclined or Horizontal . . . Can Be Made LEAK-PROOF

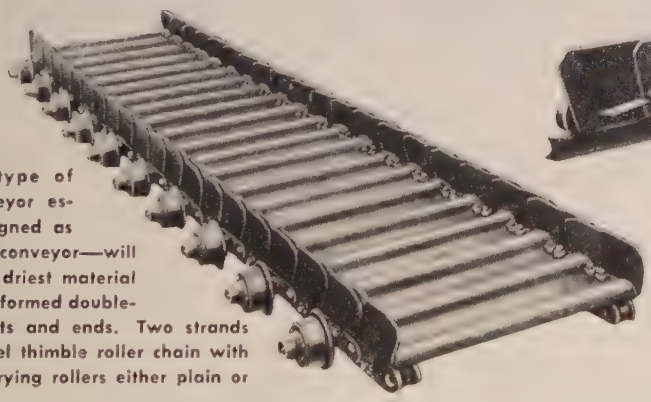


Above — a section of Apron Conveyor — depressed pan type. Mounted on Steel Thimble Roller Chain with flanged rollers for operating on rails as shown. The pressed steel bottoms are welded to the overlapping ends which are bolted to the chain side bars.

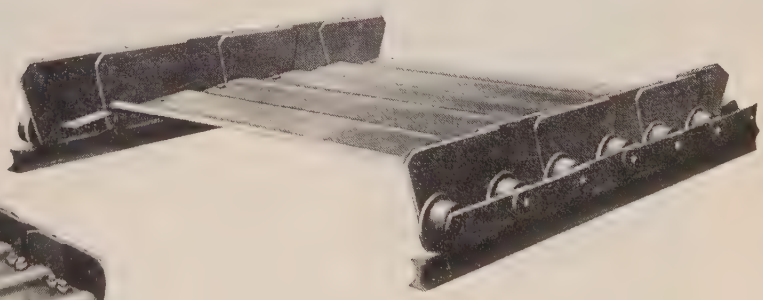
Jeffrey Apron Conveyors and Apron Feeders will provide all-day, continuous service. Send for additional information.



With tooth surface, this unit is used widely as a feeder conveyor. Ideal for feeding metal turnings to crusher.



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This section of Apron Conveyor has its ends formed by the extension of the chain side bars. The beaded and curved, or perfect discharge flights offer no resistance to flow of material.

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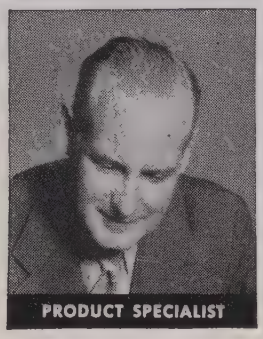
PLANTS IN CANADA, ENGLAND, SOUTH AFRICA

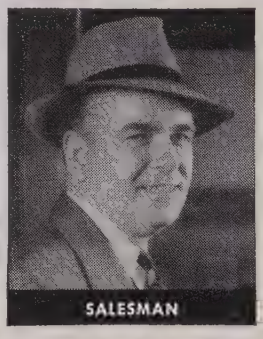
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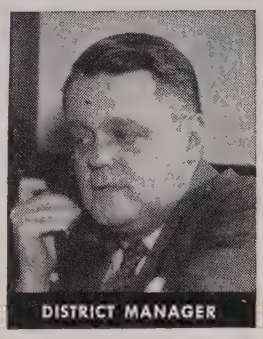
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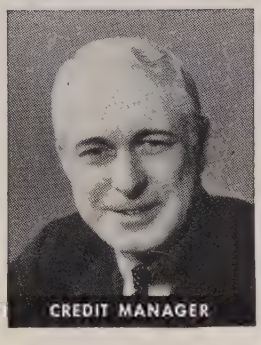

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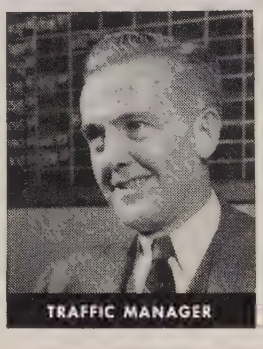

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NEW PRODUCTS and equipment

Reply card on page 163 will bring you more information on any new products and equipment in this issue

Radial Arm Machine

. . . arm extended 1½ inches

Model GA radial arm machine replaces the manufacturer's previous model, the GR. Principal improvements include a radial arm 1½ inch longer and a roller head carriage, supporting the overhead



cutting member. The latter now rides on eight bearings, compared with only four in the earlier model.

Four of the grease-packed, double row ball bearings are set at a 90-degree vertical plane to absorb extra upward thrust from rafter notching, compound angle cutting, etc. The other four bearings are set at a 45-degree plane to absorb side thrust created through normal sawing action. DeWalt Inc., subsidiary of American Machine & Foundry Co., Dept. ST, Lancaster, Pa.

FOR MORE DATA—CIRCLE REPLY CARD NO. 1

Rotating-Drum Belt Sander

. . . small-radius changeable tips

This belt sander uses one rotating drum—the driving drum, direct-connected to the motor—and has small-radius changeable tips for the opposite end of the belt. It uses two 3 x 27-inch abrasive belts, driven by a 1/3-hp motor. It has built-in dust collection, adjustable end and side tables, simple belt adjustments, belt guards and toggle switch to control motor.

By use of various abrasive belts, the Multi-Shaper is versatile in shaping and finishing metals and plastics; is applicable for deburring and finish-shaping small castings, stampings and die castings. Efficient in sanding flat surfaces, the unit also is valuable in working unusual shapes that ordinarily require hand sanding. An added convenience is the extended vertical motor shaft, providing power take-off for flexible shaft on which sanding disk, drum or cone can be operated. Von Jonker Corp., Dept. ST, Irvington Station, Indianapolis 19, Ind.

FOR MORE DATA—CIRCLE REPLY CARD NO. 2

Portable Hardness Tester

. . . range: 20 to 500 brinell

Penetrator used with this Porta-Brinell portable hardness tester makes an impression at controlled hydraulic force of 500 kg. Impression is read with a standard brinell microscope and translated to brinell hardness. Range of tester: 20



to 500 brinell, with maximum accuracy over full capacity of the machine's 12-inch gap and 4½-inch throat.

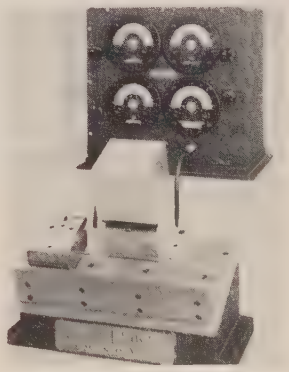
Tester has rigid I-beam construction, but weighs only 17 pounds. It works in any position, clamping work between the cylinder housing and anvil. To produce an unmarred impression, penetrator is forced into the work from a retracted position within the cylinder body, then retracted before unclamping. Unit can be bolted to a bench for stationary operation. Blosjo Enterprises, Dept. ST, 5310 Golden Valley Rd., Minneapolis 22, Minn.

FOR MORE DATA—CIRCLE REPLY CARD NO. 3

Air-Operated Gage

. . . tungsten carbide contacts

Air-operated gage measures dimensions over rolls of serrations in jet turbine blade root sections.



The gaging fixture is made with tungsten carbide contacts, precision ground to a radius corresponding with the required roll dimension.

These contacts are mounted on parallel reeds, so they are free to move in both vertical and horizontal directions. This permits measuring contacts to position themselves correctly, regardless of permissible lead variations.

In one setup, three indicators, with 0.0001-inch dial graduations, are incorporated with a computing indicator to establish automatically

CALL ON THE "Specialists" FOR ACCURATE METERING



The successful performance of Roots-Connersville Positive Displacement Meters has long been proved by large and small industrial plants and public utilities. These users rate them high in such basic essentials as:

Accuracy—not affected by pressure, wide ranges in loads or other variables. Absence of valves, vanes and other small parts insures "cash register" accuracy over years of use.

Capacity—from 4,000 cfh to 1,000,000 cfh in one unit, with ample ability to absorb overloads.

Compactness—smallest made for industrial use in foot-for-foot of capacity. Can be located in otherwise unusable space, thus saving production areas.

Almost a century of experience in handling gas and air, exclusively, goes into the design and construction of R-C Meters. They're part of the comprehensive line of blowers, exhausters, gas and vacuum pumps and related equipment, which are the products of R-C Specialists, and which are in widest use in industry.

A new bulletin, M-152, gives complete data on R-C Meters, including a handy selection table which simplifies your choice of the right meter to suit your specific application. Your copy will be sent on request.

ROOTS-CONNERSVILLE
Exclusive Specialists in Handling Gas and Air

ROOTS-CONNERSVILLE BLOWER
A DIVISION OF DRESSER INDUSTRIES, INC.
534 Shelton Ave. • Connersville, Indiana

NEW PRODUCTS and equipment

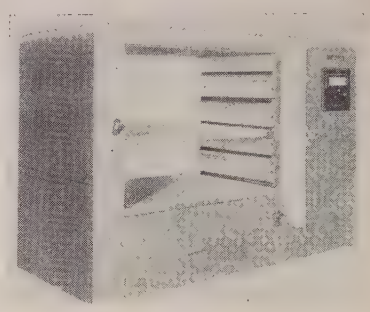
the difference between amounts that each of two dimensions varies from its mean value. The two-point contact enables an inspector to explore any taper from end to end of the slots. Taft-Peirce Mfg. Co., Dept. ST, Woonsocket, R. I.

FOR MORE DATA—CIRCLE REPLY CARD NO. 4

Electric Recirculating Oven

. . . special production runs

This electric recirculating oven is suited for either special work or production runs on smaller class of products. Model DRF-30 has 30 x 24 x 24-inch work area. Its prime heat source is a bank of thin stripped heaters, located in the



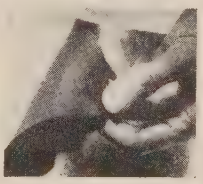
housing around the insulated chamber. Heat is regulated by adjustable louvres located immediately below each shelf bracket at both ends of the chamber.

The oven operates at temperatures from 0 to 550° F. Outside air may be injected into the circulating system by an adjustable vent. Heaters cannot be turned on unless the blower also is operating. Pereny Equipment Co., Dept. ST, 893 Chambers Rd., Columbus 12, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 5

Rubber Insert and Overlay

. . . abrasion resistant, oilproof



Rubber insert and overlay material, called Cutinsert, has special treated surfaces that are abrasion resistant and oil proof. Applications are found on core box inlays, blow plate facing, parting line facing and other foundry applications.

It is available in sheets 1 foot square in three thicknesses: ⅛, 3/16, ¼-inch. One side of the ma-

STANDARDS and SPECIALS by the Millions

THE FERRY CAP & SET SCREW CO.

2159 SCRANTON ROAD • • • CLEVELAND 13, OHIO



"SHINYHEADS"

America's Best Looking Cap Screw

Made of high carbon steel — AISI C-1038 — to standards for Full Finished hexagon head cap screws — bright finish. Heads machined top and bottom. Hexagon faces clean cut, smooth and true, mirror finish. Tensile strength 95,000-110,000 p.s.i. Carried in stock.

"HI-CARBS"

Heat Treated Black Satin Finish

Made of high carbon steel — AISI C-1038. Furnished with black satin finish due to double heat treatment. Hexagon heads die made, not machined. Points machine turned; flat and chamfered. Tensile strength 130,000-160,000 p.s.i. Carried in stock.





"LO-CARBS"

Made of AISI C-1018 steel—bright finish. For use where heat treatment is not required and where ordinary hexagon heads are satisfactory. Hexagon heads die made to size — not machined. Points machine turned. Tensile strength 75,000-95,000 p.s.i. Carried in stock.

SET SCREWS

Square head and headless — cup point. Case hardened. Expertly made by the pioneers in producing Cup Point Set Screws by the cold upset process. Cup points machine turned. Carried in stock.





FILLISTER CAP SCREWS

Heads completely machined top and bottom. Milled slots — less burrs. Flat and chamfered machined point. Carried in stock.

FLAT HEAD CAP SCREWS

Heads completely machined top and bottom. Milled slots — less burrs. Flat and chamfered machined point. Carried in stock.





"SHINYLAND" STUDS

All studs made steam-tight on tap end unless otherwise specified, with flat and chamfered machined point. Nut end, oval point. Land between threads shiny, bright, mirror finish. Carried in stock.

*

ADJUSTING SCREWS

Valve tappet adjusting screws — Hexagon head style — to blue print specifications—hexagon head hard; polished if specified — threads soft to close tolerance—points machine turned; flat and chamfered.





*

CONNECTING ROD BOLTS

Made of alloy steel — heat treated — threads rolled or cut — finished to extremely close thread and body tolerances — body ground where specified. Expertly made by the pioneers in producing connecting rod bolts by the cold upset process.

*

SPRING BOLTS

Case hardened to proper depth and ground to close tolerances. Thread end annealed. Supplied in various head shapes, with oil holes and grooves of different kinds, and flats accurately milled.



FERRY PATENTED ACORN NUTS



For ornamental purposes. Steel insert — steel covered. Finish: plain, zinc plated, cadmium plated. Size: 9/16", 3/4", 15/16" across the flats.

Tapped 1/4" to 3/4" inclusive. Cross section of Ferry patented acorn nut, showing how steel hexagon nut fits snugly into shell.



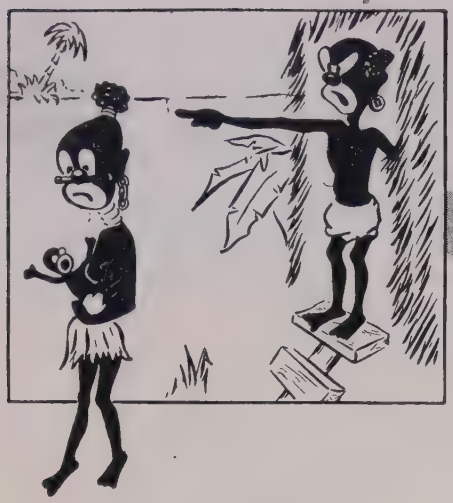
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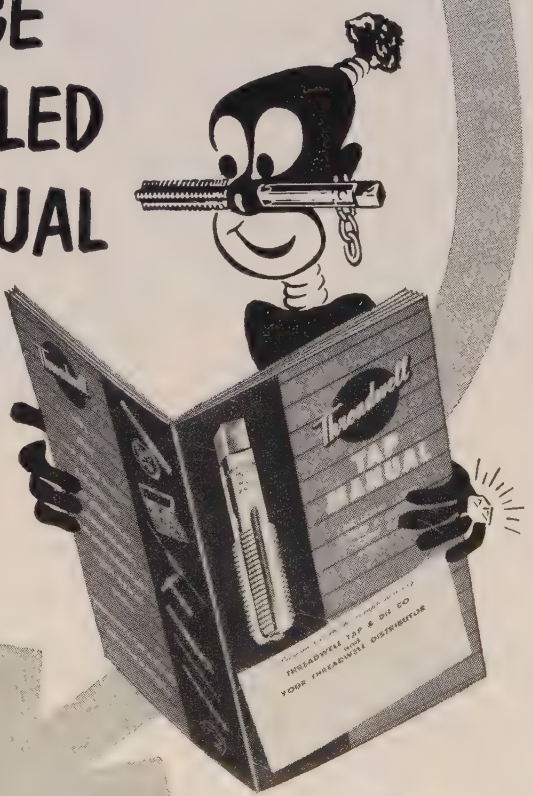


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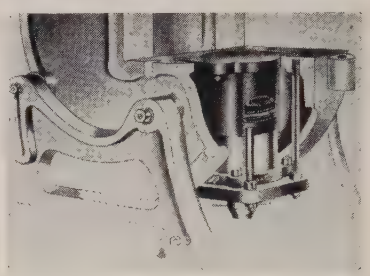
terial is a polished high gloss working surface; the other is sanded to make it receptive to adhesive materials. Martin Engineering Co., Dept. ST, Kewanee, Ill.

FOR MORE DATA—CIRCLE REPLY CARD NO. 6

Pneumatic Die Cushion

. . . with or without surge tank

This universal pneumatic die cushion, primarily designed for inclinable presses, is completely self-contained and can be used with or without surge tank. Internal guiding means is introduced to compensate for off-center loading of wear plate. The latter is hardened



and ground and can be machine-fit to the entire bed opening.

Combination reducing regulating valve and pressure gage assures constant work pressure on pin pressure pad at all times. This pressure is recorded on the pressure gage. Dayton Rogers Mfg. Co., Dept. ST, Minneapolis 7, Minn.

FOR MORE DATA—CIRCLE REPLY CARD NO. 7

Self-Cleaning Strainer

. . . extra-coarse operations

Designed specifically for extra-coarse cleaning, this strainer will remove fine suspended particles from raw or process water and dispose them in a self-cleaning manner. Strainer is basically a heavy cast iron housing containing cast iron drum that retains the straining element. Drum has large slots with coarse wire mesh screen attached inside. Water or liquid en-

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Just circle the corresponding number of any item in this section for more information.

INFORMATION

AVAILABLE FOR THE ASKING

70. High Pressure Valves

Atkomatic Valve Co.—Bulletin on type HP and HP-SS-X bronze and stainless steel high pressure electrically operated valves gives design and operational features and includes circuit and construction drawings. Liquid pressures to 3000 and steam pressures between 150 and 250 psi may be controlled.

71. Small Metal Parts

Torrington Co., Specialties Div.—Small precision metal parts listed in 4-page folder include pins and pivots; screwdriver blades; rotary swaged rods, wires and tubing; grinding wheel mandrels; abrasive points and polishing wheels; perforating punches; and tapered or pointed wires and rods.

72. Small Lot Stampings

Duplicon Co.—12-page illustrated catalog on small lot stampings explains how many industries have been aided by low cost stampings made from steel, brass and aluminum. Plant machines used to produce stampings are listed.

73. Saving Melting Fuel

Whiting Corp.—Fifth in a series of information folders is this 6-page report "Here's How to Save Melting Fuel." It tells where to watch for heat losses on the way from melting furnaces to molds, and what to do about them.

74. Tool & Die Accessories

Producto Machine Co.—Dowel pins, die springs, stripper bolts and cap screws are listed with illustrations and detailed description in 12-page catalog. Toolroom equipment, including presses, hand tappers and vises, is also featured.

75. Roller Chains & Sprockets

Acme Chain Corp.—76 pages of technical and engineering information are offered in plastic-bound catalog on roller chains and sprockets. Sections cover ASA standard roller chains and attachments, double pitch roller chains, noncorrosive chains, cable chains, sprockets and flexible couplings. Section on roller chain drives completes the booklet.

76. Engineering Services

Sam Tour & Co.—"All Under One Roof" is title of 6-page illustrated booklet that explains the variety of technical services this company offers to industry. Its engineers, metallurgists and chemists will tackle a wide variety of activities.



77. Hydraulic Cylinders

Lindberg Engineering Co. — Diagrams, photos and charts explain the different mounting types and capacities of hydraulic cylinders with up to 1500 and 3000 psi working pressures. This 28-page bulletin, identified as 701, has complete specifications and much technical data.

78. Plate Resistors

Electric Controller & Mfg. Co.—Diverse technical data on Tab Weld plate resistors for motor control, controllers, starters, battery charging and similar resistor applications are found in 8-page illustrated bulletin 942-B. Complete specs, design advantages and general information are included.

79. Flexible Gear Couplings

Sier-Bath Gear & Pump Co.—16-page catalog No. C4 gives information on applications, standard and special types and engineering data for line of flexible gear couplings. Units are compact, can be easily assembled and disassembled without wrenches or special tools, and are available in a wide capacity range.

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80. Torque Converters

Torcon Corp.—Comprehensive information on purpose, application, construction and operation of Torcon hydraulic torque converters for medium-heavy applications is found in 6-page illustrated bulletin TC-649. Also included is a unit size selection chart based on engine rpm and net horsepower.

81. Carburizing Salts

Swift Industrial Chemical Co. — Advantages realized through use of Swift Polytherm blended liquid carburizing salts are detailed in 4-page folder LCS-52. These include increased speed, uniformity of case depth and durable finishes in any liquid carburizing equipment.

82. Industrial Trucks

Baker-Raulang Co. — Construction features, specifications and engineering details of Baker industrial trucks are covered in 8-page illustrated catalog No. 54. Included are fork and ram, platform and crane trucks. Also shown are various special attachments.

83. Speed-Reduction Drives

American Pulley Co. — Shaft mounted speed reducers are illustrated and described in 20-page catalog. Complete information is given on dimensions, applications, installation procedures, and instructions for correct unit selection for a given application are included. Cut-away and phantom drawings illustrate construction details.

84. Induction Heaters

Magnethermic Corp.—Form 1052 is an 8-page bulletin on 60-cycle low-frequency induction heaters for forging, annealing, rolling, piercing, aluminum aging and die heating. Information includes rating and dimension tables, sizes, photographs and the operational story.

85. Milling Machines

Motch & Merryweather Machinery Co.—Data on a multiple station milling and center drilling machine are given in 4-page illustrated folder. Complete specifications, typical applications and operating principle are given. The machine is semiautomatic and requires comparatively little floor space for a given production.

86. Jet Blade Contour Grinder

Landis Tool Co.—Surface grinding jet blades, buckets, vanes and nozzles in a continuous operation with a jet blade contour grinder is described in bulletin CGQ-52. Standard and optional equipment, features, specifications and operational sequence are all fully described.



EDITORIAL REPRINTS:

87. Organized Research

"Recipe for Profit: Organized Research" is title of STEEL reprint which is No. 3 of a management series on "Basic and Product Research." This article discusses management's responsibility in the research endeavor and covers value and cost of the program, selection of the right research team, utilizing outside facilities and applying results.

88. Waste Pickling Liquors

What to do with waste pickling liquors is a perennnial headache of metallurgical industries. In STEEL reprint "Reuse Waste Pickling Liquors," Dr. A. G. Gray, Technical Editor, describes a new process announced at Blaw-Knox Co. for recovering the entire sulphate equivalent of waste pickle liquor as reusable sulphuric acid. No undesirable byproducts are left

89. Stretch Wrap Forming

Development of curved jaws for gripping metal sheet in stretch wrap forming process results in widening range of stretchable metal. Segmented jaws can be curved to almost any desired preset contour to match transverse curvature of form die. M. J. Connington and W. F. Thurber of North American Aviation Inc. describe this "New Wrinkle in Stretch Wrap Forming" in STEEL reprint of the same name.

90. Treating Tank Tracks

Steel tank tracks get brazed and hardened as they move through automatic roller hearth furnaces. Versatility and high output promise good future for this conveyorized system. H. M. Webber of G-E's Industrial Heating Dept. describes the system in STEEL reprint "Roller Hearth Furnaces Toughen Tank Feet."

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ters at the bottom, rises around the outside of the slotted drum, then is forced through the screen media to separate foreign matter.

Backwash orifice opened in the side of the housing creates a pressure differential between interior



and backwash outlet. This differential causes flow reversal that enables water from the strainer's center to wash foreign matter from the ouside surface. S. P. Kinney Engineers Inc., Dept. ST, 201 Second Ave., Carnegie, Pa.

FOR MORE DATA—CIRCLE REPLY CARD NO. 8

Fork Lift Models

. . . 3000, 4000-pound units

Two fork lift trucks, capacities 3000 and 4000 pounds, are powered by heavy-duty water cooled industrial engines and mounted on cushion-type tires. Outstanding in the



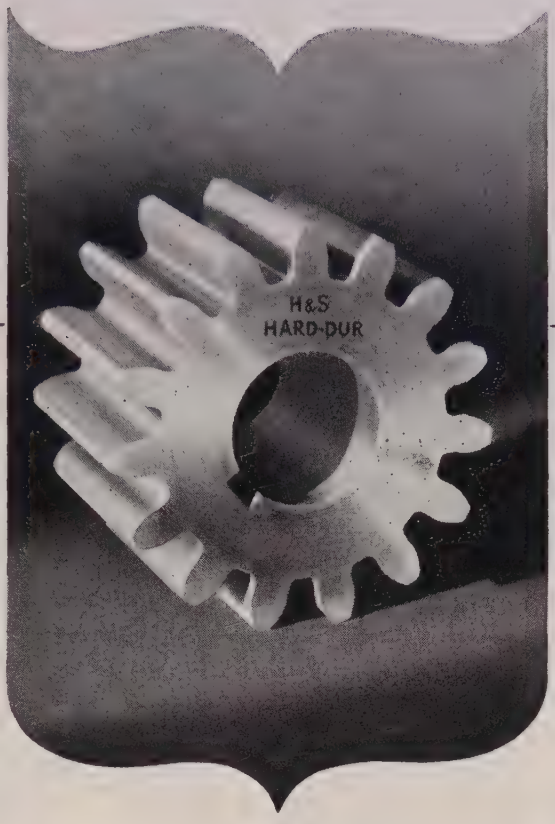
models YC-40 and UC-30 are extreme compactness, durability and maneuverability.

The YC-40 has 4000-pound capacity at 24-inch load centers, is

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when the job is tough . . .



USE "HARD-DUR" GEARS

they preserve the tooth form

• "HARD-DUR" Gears not only preserve tooth form because the material is highly wear resistant and the gears are scientifically heat treated to obtain maximum physical properties...but they have involute teeth that are produced to high standards of accuracy by very careful workmanship. In fact "HARD-DUR" Gears are so much stronger, harder and more wear-resistant, that they are guaranteed to have at least four or five times the life of similar untreated gears...and at only 50% extra in cost.

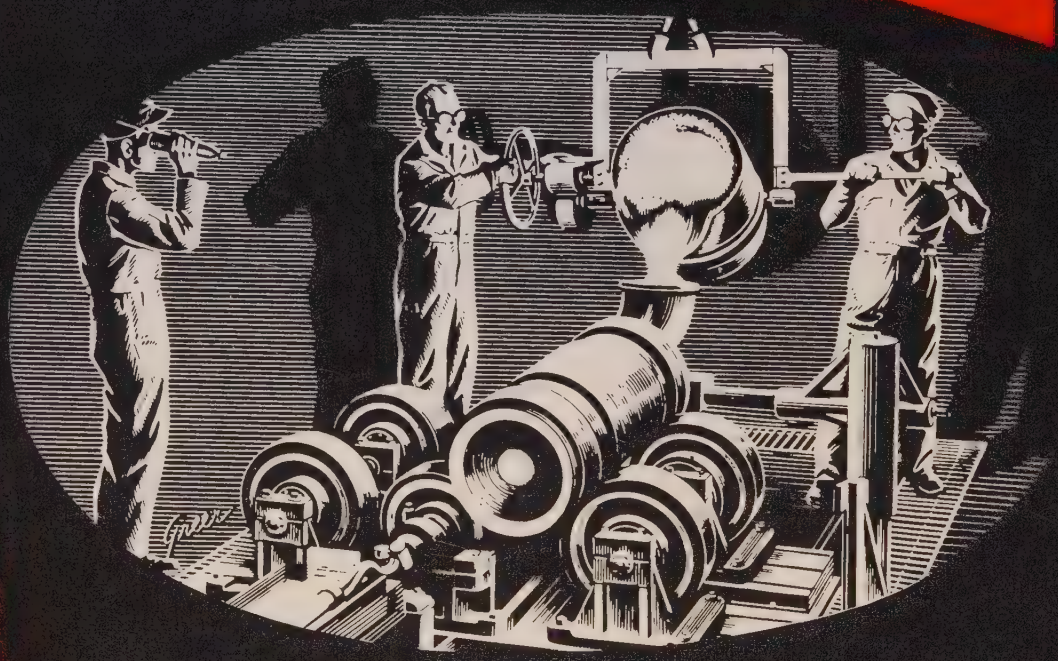
THE HORSBURGH & SCOTT CO.

GEARS AND SPEED REDUCERS

5112 HAMILTON AVE. • CLEVELAND 14, OHIO, U.S.A.

Send note on Company Letterhead for 488-Page Catalog 49

stainless steel



UNITED STATES PIPE & FOUNDRY CO.

Special Products Division

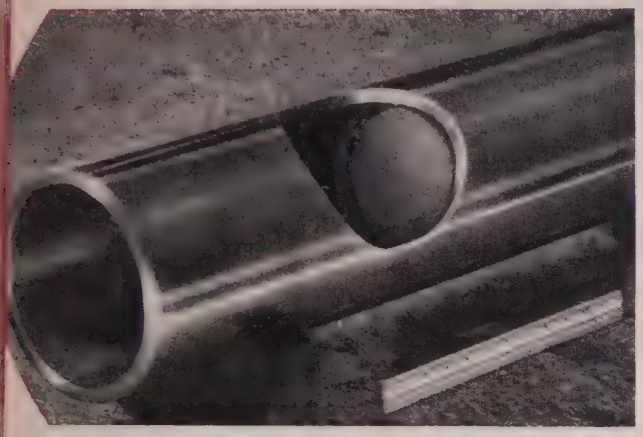
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SPECIAL PRODUCTS DIVISION

AMERICA'S LARGEST PRODUCER OF CENTRIFUGALLY CAST FERROUS METAL PRODUCTS IN TUBULAR FORM

centrifugally cast

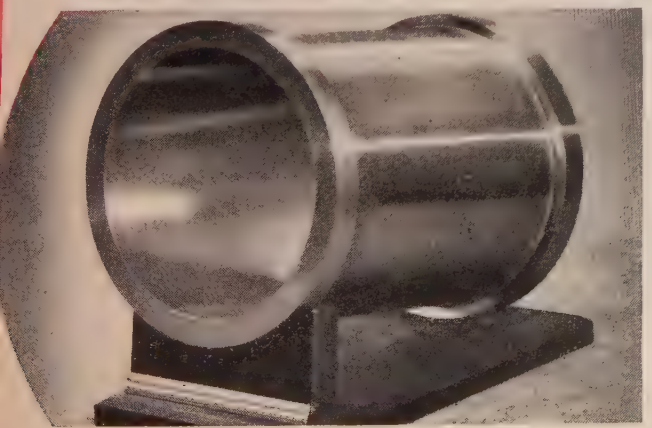
METAL MOLD CENTRIFUGAL CASTING SPELLS ECONOMY AND EFFICIENCY FOR WIDENING GROUP OF STAINLESS STEEL PRODUCTS



Finish machined Armco 17-4 P H Stainless Steel valve plunger with welded plate and port for the paper industry.



Type 303 Stainless Steel stock from which rings and sleeves are fabricated for many industrial and defense applications.



Rough machined Type 316 Stainless Steel bowl casting for the food and processing industries.

Pictured here are a few of the many stainless steel products now included in the rapidly increasing family of products centrifugally cast for industry by our metal mold process.

This method offers many specific advantages. For one, centrifugally cast stainless steel cylindrical sections, formed by pouring molten metal into rapidly spinning, refractory-coated permanent metal molds represent the ultimate in casting quality, imparting a fine, dense grain structure, unusually free from conventional casting defects.

You may find that your stainless steel product can be cast more advantageously by this versatile process. Our engineers will be glad to answer any of your questions.

SIZE RANGE AND COMPOSITION FLEXIBILITY

Outside Diameter—4" to 30"

Wall Thickness—$\frac{3}{8}$" and up

Length—Up to 14' in the "as-cast" condition

Types of Stainless Cast—All standard AISI and ACI grades of ferritic and austenitic stainless, plus "Special" types

CHECK THESE ADVANTAGES FOR YOUR CYLINDRICALLY-SHAPED PRODUCTS:

- Reduced Processing Time and Increased Production.
- Minimum Scrap Loss.
- Design of parts to suit the specific job requirement by selecting the correct alloy—not the next best available alternate.
- Conservation of critical metals and alloys—especially on tubular parts now produced from solid sections.

A-1037

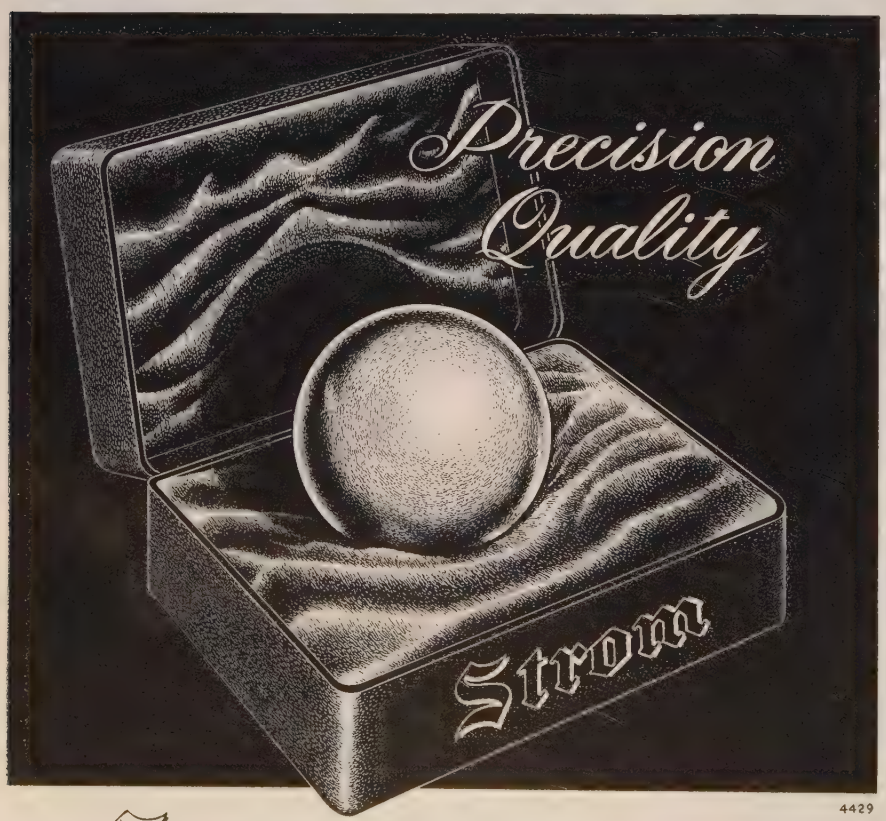


Above: For charging blast furnace.

EASTON experience covers all types of skips for automatic dumping at the top of an incline.

SKIP CARS

EASTON CAR & CONSTRUCTION COMPANY • EASTON, PA. • NEW YORK • PHILADELPHIA • PITTSBURGH



4429

Strom STEEL BALL CO.

Largest Independent and Exclusive Metal Ball Manufacturer

1850 SO. 54th AVE., CICERO 50, ILLINOIS

38 inches wide and 78½ inches long. Collapsed height: 82½ inches. These dimensions permit efficient operation inside box cars and in crowded quarters. The UC-30 is basically the same truck, but has 600 pounds less counterweight and 3000-pound capacity. Its overall length is 74⅜ inches. Both have sharp turning radius of 75 inches and 30 inches free lift. Hyster Co., Dept. ST, 2902 N. E. Clackamas St., Portland 8, Oreg.

FOR MORE DATA—CIRCLE REPLY CARD NO. 9

Pressed Steel Rheostats

. . . creep from vibration reduced

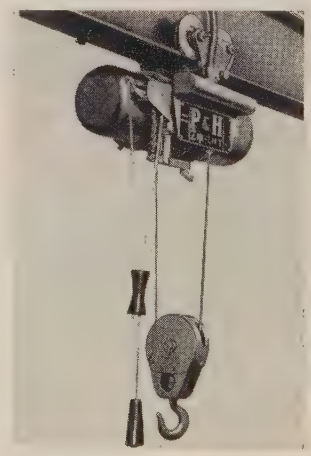
Vitrohm pressed steel rheostats, designated as bulletin 60A, feature a balanced contact arm keyed directly to driveshaft to reduce creep from vibration or shock; self-lubricating bushing and graphitized movable contact shoe. A reflexed collector ring supplies a self-cleaning surface. Vitrohm enamel permanently seals resistance element, stationary contacts and collector ring in position. Ward Leonard Electric Co., Dept. ST, Mt. Vernon, N. Y.

FOR MORE DATA—CIRCLE REPLY CARD NO. 10

Rope-Controlled Electric Hoist

. . . models: 500 and 1000 pounds

Standard Zip-Lift electric hoist is designed for operation with the manufacturer's one-hand rope control. The lift is built to operate continuously during intermittent



usage for a period 25 per cent longer than rated time limit. It is also built with weight-overload safety factor five times rated capacity.

Wire rope hoisting is employed



"Who said people don't like Black?"



Pitt Chem coatings withstand years of exposure to a wide variety of atmospheric and chemical conditions.

LET'S TALK SENSE about the color of protective coatings. Pitt Chem Tar Base Coatings, for example, are as black as the ace of spades. Our service engineers would never recommend them for the walls of your office. But—for the protection of equipment and structures against corrosion, we think their color is the most practical one you could select. And a recent survey shows that plant people agree with us. They select black as one of the two most popular of all industrial coating colors. Why?

It doesn't fade. It "goes" with all other colors.

It doesn't require cleaning. It creates no glare.

And remember this: The black color of Pitt Chem Tar Base Coatings tells you they're made of one of the most impervious and durable of all protective materials—coal tar pitch. For long-lasting, economical protection against most mineral acids, alkalis, corrosive vapors and moisture, there's no finer protective material on the market today. ● If you have a corrosion problem write or call a Pitt Chem Coating Specialist today. He'll gladly make recommendations . . . without cost or obligation.

PITT CHEM 101
For severest corrosive conditions

PITT CHEM 102
A thin, high gloss maintenance coating

PITT CHEM 103
For metal exposed to vapors, dilute acids and alkalis

PITT CHEM 104
For equipment handling potable water

AND OTHER SPECIALTY COATINGS

W&D 4555

PROTECTIVE COATINGS DIVISION

PITTSBURGH
COKE & CHEMICAL CO.

Grant Building • Pittsburgh 19, Pa.

COAL CHEMICALS • AGRICULTURAL CHEMICALS • FINE CHEMICALS • PROTECTIVE COATINGS • PLASTICIZERS • ACTIVATED CARBON • COKE • CEMENT • PIG IRON

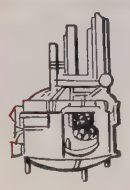
CONTROL is the key

to the unequalled performance of

WHEELABRATOR® STEEL SHOT

THESE CHECK POINTS GUARANTEE THE PERFORMANCE OF WHEELABRATOR® STEEL SHOT

MELTING



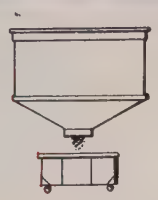
- ✓ **1.** Rigid scrap selection
- ✓ **2.** Preliminary carbon and manganese analysis.
- ✓ **3.** Complete chemical analysis.

POURING



- ✓ **4.** Accurate and continuous control of pouring temperature.
- ✓ **5.** Accurate and continuous control of quench temperature.

FIRST SCREENING



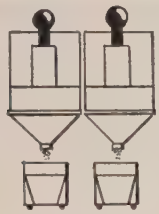
- ✓ **6.** Visual and metallographic inspection in as-cast condition.
- ✓ **7.** Hardness check in as-cast condition.
- ✓ **8.** Continuous inspection of screening operation.

DRYING and SHOT CONDITIONING



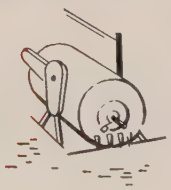
- ✓ **9.** Recording temperature control.
- ✓ **10.** Removal of objectionable material.

SECOND SCREENING



- ✓ **11.** Continuous inspection of screens.

FIRST HEAT TREATING



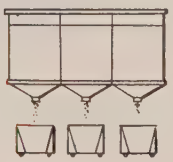
- ✓ **12.** Automatic control and permanent record by recording instrument of heat treat time and temperature.

SECOND HEAT TREATING



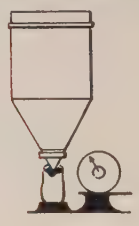
- ✓ **13.** Automatic control and permanent record by recording instrument of heat treat time and temperature.
- ✓ **14.** Continuous tests for hardness and carbon content.
- ✓ **15.** Continuous microscopic inspection.

FINAL SCREENING



- ✓ **16.** Continuous inspection of screens and shot.
- ✓ **17.** Daily laboratory checks of screening accuracy.

BAGGING



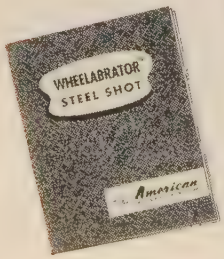
- ✓ **18.** Continuous inspection of shot.
- ✓ **19.** Daily shot breakdown tests.

How many perfect castings do you make in a hundred million pieces? One average shipment of shot, either iron or steel, contains that many individual castings. The greater percentage of imperfect castings it contains, the faster it breaks down and requires replacement. Even slight variations in structure or hardness can have a tremendous effect on cleaning costs.

After years of research, Wheelabrator has developed and patented a method for producing shot with an absolute minimum of defective pellets. It took a new plant and new production methods in order to achieve this quality and there are 19 CONTROL CHECKS to see that it is maintained.

This new "Wheelabrator" Steel Shot is made of the finest electric furnace steel which is heat treated to a tempered Martensite microstructure, the hardest and toughest of the iron carbon alloys. It is given a double heat treatment at automatically controlled temperatures to provide a new standard of toughness, solidity, uniformity and efficiency.

FOR YOU this means less abrasive to buy, fewer machine parts to replace, less maintenance labor required and lower freight costs.



Bulletin 89 tells the complete story about "Wheelabrator" Steel Shot and what it means to the user in terms of performance and economy. Write for your copy today.

American
WHEELABRATOR & EQUIPMENT CORP.
509 S. Byrkit St., Mishawaka, Indiana

WORLD'S LARGEST BUILDERS OF AIRLESS BLAST EQUIPMENT

because of its wide range of side pull and safety from hidden wear. Other features include double brakes, oil bath lubrication, fully-enclosed construction and grease-packed motor bearings. Lift comes in two models, with lifting capacities of 500 and 1000 pounds. Hoisting rates are 25 and 13 fpm. Both models are available with 12 and 18-foot lift. Harnischfeger Corp., Dept. ST, 4400 W. National Ave., Milwaukee 46, Wis.

FOR MORE DATA—CIRCLE REPLY CARD NO. 11

Vibratory Feeder

. . . rheostat-governed flow

This small electromagnetic Vibratory Feeder, model F-01, is designed for problems involving low tonnage bulk material handling and feeding. The feeder has maximum capacity of 2 tons per hour.



Its electromagnetic design eliminates use of rotating, working parts such as gears, cams, belts, etc. All action is confined to easily replaceable leaf springs.

Regulation of material flow out of the feeder is governed by a rheostat in the controller. The model weighs 48 pounds and is furnished complete with its own controller. Syntron Co., Dept. ST, 370 Lexington Ave., Homer City, Pa.

FOR MORE DATA—CIRCLE REPLY CARD NO. 12

X-Ray Image Amplifier

. . . brightens images 800 times

Images 800 to 1200 times brighter than those obtained with the manufacturer's conventional fluoroscope are produced by this x-ray



image amplifier. The device consists of an evacuated glass tube about 18 inches long and 7 inches diameter with one flat end, the other hemispherical, curving outward.

Inside the hemispherical end is a curved fluoroscopic screen in direct contact with the photocathode. On the inside, at the flat end, is a second fluorescent screen, reduced nine times in size. A simple optical microscope with magnification power of about nine is external to the glass tube, but coupled mechanically to it. North American Philips Co. Inc., Dept. ST, 750 S. Fulton Ave., Mount Vernon, N. Y.

FOR MORE DATA—CIRCLE REPLY CARD NO. 13

Welding Head-Shield

. . . ups operator comfort

Operator comfort is a primary consideration in design of this arc welding head-shield. A permanently pliable head band made of plastic rather than the usual fiber fits the head the same as a hat, to give a firm comfortable fit. Band is adjustable for fit around and over the head.

The shield proper is a one-piece molded fiber construction to achieve both light weight and strength. Adjustable stops on each side limit drop to any point desired by the welder. Lincoln Electric Co., Dept. ST, Cleveland 17, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 14

Screw Machine Marker

. . . die marks end face of parts



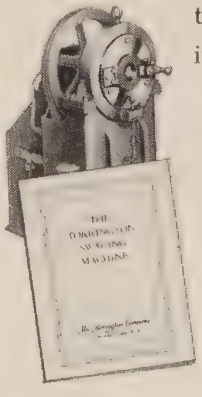
Marking device for screw machines permits die marking of part numbers, patent numbers, trade marks, etc., on the end face of parts during a machine cycle. The marker is suitable for both light and heavy work on automatic and hand-operated machines and is applicable for marking on any diameter of face 1½ inch and larger.

Chief advantage is elimination of need for separate marking setups. Easy disassembly for rapid lettering roll interchange is possible by removing two conveniently-placed cap screws. Marking impression depth is controlled by a starting cam on the roll die. New



for a tighter hold

Torrington Swaging Machines offer an ideal method of attaching ferrules and cable ends to wire or rod. Rapid hammer blows (4000 a minute) tighten the ferrule quickly around the rod – producing a bond that withstands as much tensile strain as the inner member alone.



"The Torrington Swaging Machine" tells you how to do a better job of shaping many metal parts, and save money, too. It also describes the complete line of Torrington machines. Write for your free copy...today!

THE TORRINGTON COMPANY
Swager Department
556 Field Street • Torrington, Conn.
Makers of
TORRINGTON NEEDLE BEARINGS

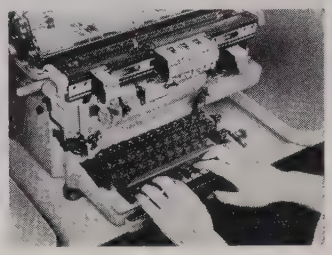
Method Steel Stamps Inc., Dept. ST, 147 Jos. Campau, Detroit 7, Mich.

FOR MORE DATA—CIRCLE REPLY CARD NO. 15

All-Purpose Bookkeeper

. . . automatic accounting control

Economical mechanization of customer accounts receivable is an achievement of this complete all-purpose bookkeeping machine. The unit will produce, simultaneously or individually, sales and income analyses, vendors accounts payable with purchases and expense analyses, and payroll with cost records and minimum labor analyses.



It produces multiple records with mechanical proof for every entry, instantly-computed account balances and automatically accumulated accounting control figures. Remington Rand Inc., Dept. ST, 315 Fourth Ave., New York 10, N. Y.

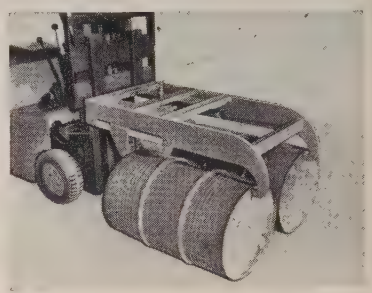
FOR MORE DATA—CIRCLE REPLY CARD NO. 16

Horizontal Drum Sander

. . . automatic size adjustment

This horizontal drum handling attachment is completely interchangeable among the manufacturer's entire line of fork trucks. It is semiautomatic, quickly and easily adjusting itself to a variety of drum sizes for horizontal lifting and tiering. The attachment handles drums ranging over a length from 26 to 38 inches.

In its range is ability to handle drums full or empty, singly or in pairs. Overall width of the attachment is 26½ inches. It weighs about 300 pounds and requires no tools for mounting or dismounting. Clark Equipment Co., Dept. ST, Battle Creek, Mich.

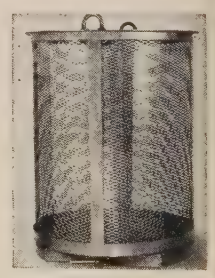


FOR MORE DATA—CIRCLE REPLY CARD NO. 17

Expanded-Metal Basket

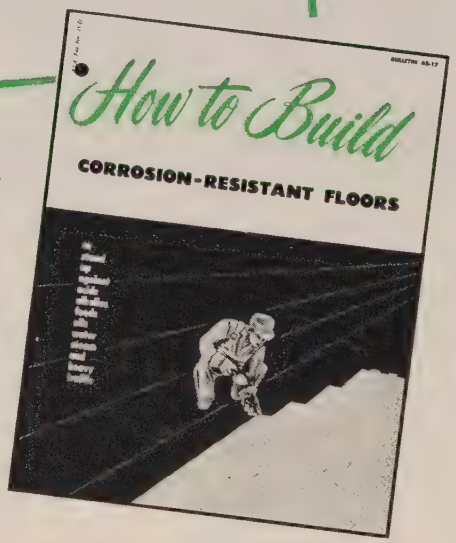
. . . provides maximum open area

This degreasing basket, made from Wheeling expanded metal, provides maximum open area for penetration of liquid or air. Other characteristics are high strength and durability. Smooth diamond pattern prevents liquid and waste particles from lodging in corners, with consequent reduction in size openings.



Made by slitting and stretching solid steel sheet of various gages into one-piece panels that can be

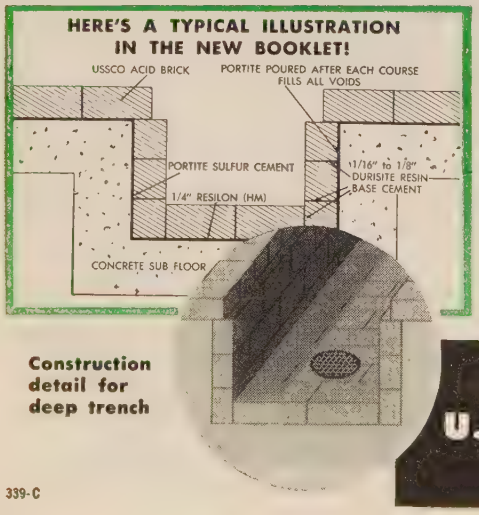
THE ANSWERS TO THESE QUESTIONS ON ACID-BRICK FLOOR CONSTRUCTION ARE YOURS FOR A THREE-CENT STAMP



- HOW TO LAY AN INEXPENSIVE, IMPERMEABLE MEMBRANE.
- HOW THIN JOINTS CAN BE EASILY MADE.
- SHOULD YOU TRY TO GET BY WITH BUTTERING BRICK ON FOUR SIDES ONLY?
- WHAT'S THE SIMPLEST WAY TO BUILD A COVE BASE?
- CAN YOU SAFELY INSTALL AN ACID-BRICK FLOOR OVER AN OLD CONCRETE SUB-BASE?
- HOW TO SELECT THE RIGHT BRICK FOR THE JOB.
- ARE EXPANSION JOINTS NECESSARY?
- WHAT'S THE BEST CONSTRUCTION FOR PIERS? MOTOR SUPPORTS? TRENCHES?

The money-saving answers to these questions, and many more, are found in our new booklet "How to Build Corrosion-Resistant Floors." In its 16 pages you will find the full story on the construction of acid-and-alkali-resistant brick floors. Every detail is covered — every important point thoroughly described and discussed. Photographs, sketches, engineering drawings — all are used to give you a clear, concise picture. Get your copy today — it's free on request.

HERE'S A TYPICAL ILLUSTRATION IN THE NEW BOOKLET!



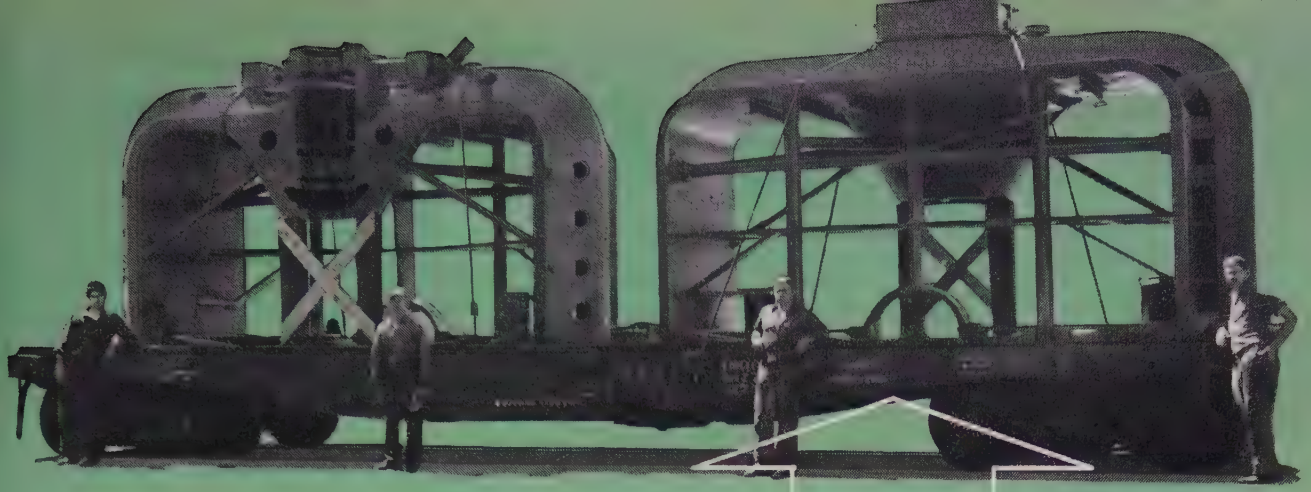
Construction detail for deep trench

Write U. S. Stoneware Co., Process Equipment Division, Akron 9, Ohio.

Engineers, Manufacturers, Erectors of Corrosion-Resistant Equipment since 1805.

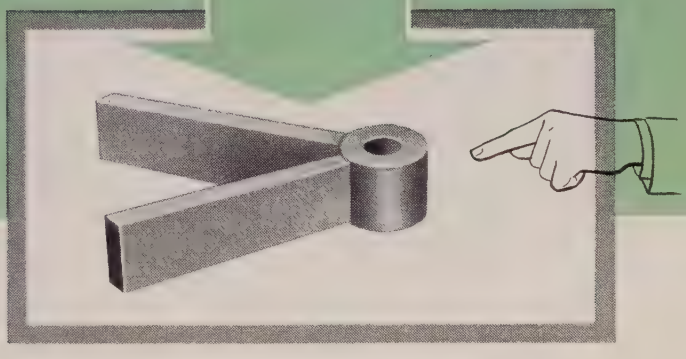
U. S. STONEWARE
AKRON 9, OHIO

339-C



From Turbine Bases like THESE

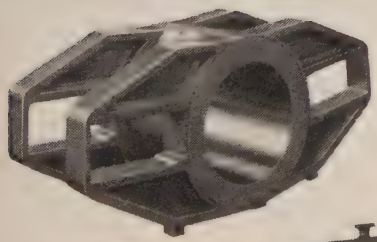
to Brackets like THIS



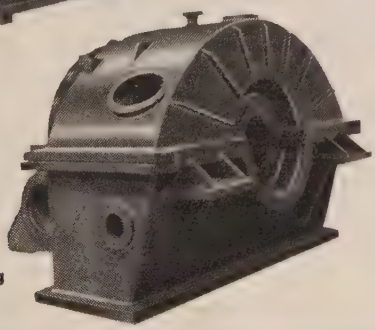
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Welded Tiller



Welded Turbine Housing

Struthers Wells has the "know how," the experience and equipment to give you complete Weldment service.

- We combine forgings, rolled bars and beams to simplify weldments
- We redesign heavy castings to lighter and stronger weldments
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- We use intensive production experience and quality inspection
- We machine weldments, if desired

Send us your problems or your requirements. Write for booklet, *"Struthers Wells Weldments."*

Struthers Wells

STRUTHERS WELLS CORPORATION

TITUSVILLE, PA.

PLANTS at TITUSVILLE and WARREN, PA.

formed and welded easily to steel framework, the basket provides high strength-weight ratio. Stanwood Corp., Dept. ST, 4823 W. Cortland St., Chicago 39, Ill.

FOR MORE DATA—CIRCLE REPLY CARD NO. 18

Pressure Leak-Stopper

. . . additive transforms cement

This liquid chemical additive makes a fast-acting leak-stopper out of ordinary cement. The material is called Flextite and regulates the setting time of Portland



cement, making it possible to stop direct leaks almost instantly without removing hydrostatic pressure.

Mortar is equally effective as a water-resistant plaster coat that seals off seepage and excludes moisture. It is also applicable for pointing up spalled areas or reforming exposed reinforcing bars or beams. Flexrock Co., Dept. ST, 3630 Filbert St., Philadelphia 1, Pa.

FOR MORE DATA—CIRCLE REPLY CARD NO. 19

CABLE-LINK

CABLE CONVEYOR SYSTEMS

will "Button-up" your Materials Handling Problems Quickly and Economically!



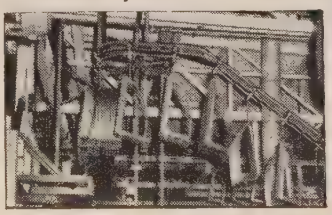
This is a "CABLE LINK" with Buttons

STRONG, DURABLE, PREFORMED PLOW STEEL

Sound, ingenious engineering concepts mark C-L conveyor systems as phenomenally brilliant achievements of this materials handling age. Simplicity, dependability and superiority in performance have won approval and acceptance for C-L Systems in every branch of industry. Today, CABLE-LINK offers Cable Conveyor models superior to 2", 3" and 4" chain installations. Lightweight or heavy duty, the conveyor with CABLE for your job is best ABLE!

Proving Superior Maneuverability and Performance

Dip and turn shown on C-L System in "big-three" automotive-supplier plant. Limited space, cumbersome load are no obstacles to C-L methods.



DEPENDABILITY!

Brackets exert 360 pressure on "buttoned" ends of "CABLE-LINKS". Trolley becomes immovable regardless of "pull-load."

NO MOVING PARTS BELOW THE RAIL!

LITTLE FRICTION... NO WEAR!

MINIMUM MAINTENANCE REQUIRED

SIMPLE TO ASSEMBLE QUICKLY INSTALLED!

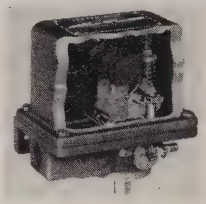
Write today for brochure giving complete details.

CABLE-LINK CORPORATION

20177 JOHN R STREET • DETROIT 3, MICHIGAN

Pressure Switch

. . . explosion-resisting closure



This pressure switch for water pumps and air compressors is built in explosion-resisting enclosure for conditions where explosive atmospheres are present or highly combustible fuels must be handled. Two types are available to meet varying requirements: Water pump switch has a 20 to 80 psi pressure range; air compressor switch has 40 to 200 psi range.

The enclosure consists of a two-piece casting with highly machined surfaces between cover and case, designed to meet Class I, Group D specifications. Stationary contact block and movable contact yoke bar are made of noncarbon tracking Rostone. The structure is two-pole, double break, silver-to-silver, visible and vertical contact. Internal parts are treated to resist corrosion. Square D Co., Dept. ST, 4041 N. Richards St., Milwaukee 12, Wis.

FOR MORE DATA—CIRCLE REPLY CARD NO. 20

Offset Boring Chuck

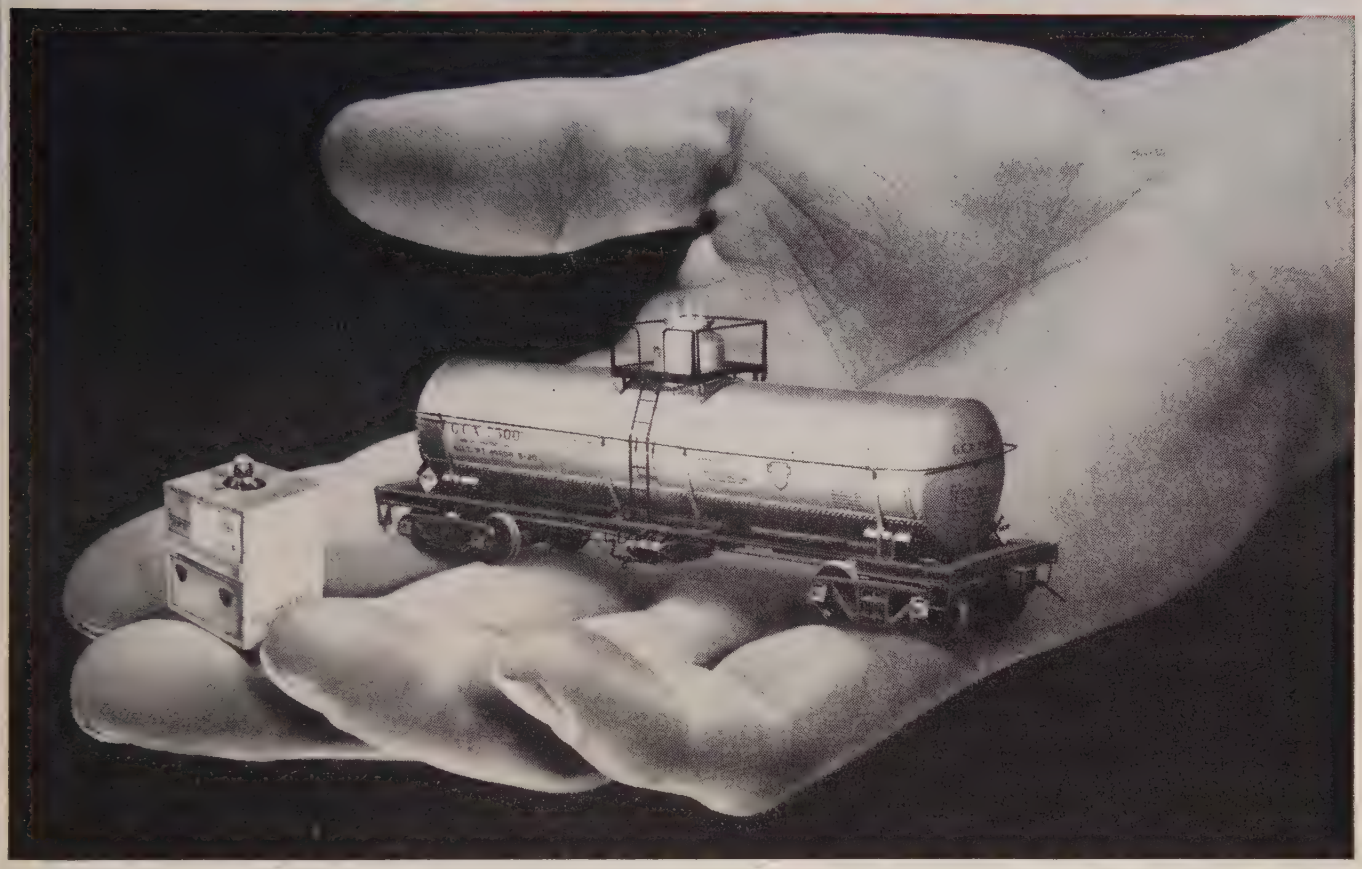
. . . positive dead centering



Positive dead-centering feature for drilling and milling is a characteristic of this heavy-duty offset boring chuck. Result is elimination of necessity for chuck removal. Another feature is an extra-large dial with micrometer screw that makes possible precision adjustment of offset and extremely accurate resetting for duplicating.

All-steel, hardened and ground, with all moving parts lapped, the chuck has a one-piece body and

use acids?



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and many other inorganic acids in commercial and reagent grades

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In Wisconsin: General Chemical Company, Inc., Milwaukee
In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver

How LINDE SERVICE* REDUCES THE COST OF OXYGEN

Surface scale and cracks must be removed from steel slabs and billets before they are rolled. Years ago that was a serious bottleneck in steel production.

In 1930 LINDE started to break this bottleneck with the introduction of oxygen scarfing. By 1945 the cost of scarfing had been reduced by LINDE-developed improvements to a fraction of former costs.

And yet, although other operating costs increased, LINDE SERVICE still found ways to reduce scarfing costs. By 1951—through additional improvements in technique and equipment—costs had been cut below those of 1945 by another 20%.



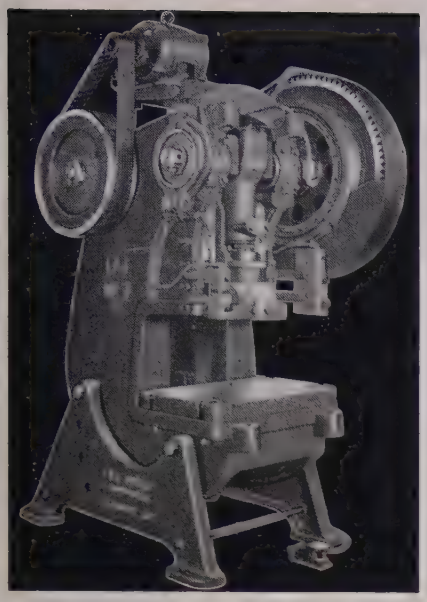
SAVING A MILLION DOLLARS PER YEAR!

In one operation alone, the hand-scarfing of slabs, LINDE customers are today realizing savings of more than a million dollars a year, over and above the already greatly reduced costs of just a few years ago. These savings result from current LINDE SERVICE. Significantly, they closely match the total cost of the oxygen for the operation. Regardless of the amount of oxygen you need—or the industry in which you use it—find out how LINDE OXYGEN plus LINDE SERVICE can help you save time and money.

* **LINDE SERVICE** is the unique combination of research, engineering, and over 40 years of accumulated know-how that is helping LINDE customers save money and improve production in their uses of oxygen and oxy-acetylene processes.

Linde Trade-Mark

LINDE AIR PRODUCTS COMPANY
A Division of UNION CARBIDE AND CARBON CORPORATION
30 East 42nd Street New York 17, N. Y.
Offices in Principal Cities
In Canada: Dominion Oxygen Company, Limited, Toronto



L&J PRESSES

MORE PRODUCTIVITY AT LOWER COSTS

The accuracy and productivity of an L & J No. 7 Press plus the advantages of an L & J Fawick Air Clutch* give you an ideal combination for reducing costs and improving the quality of your press work.

This dependable combination permits maximum practical speeds plus greater safety and shock-free, full-power operation. Selective controls include inching, single stroke and continuous running. The L & J Air-Release Spring-Set Brake sets automatically if air pressure fails.

It will pay you to find out the advantages this 80 ton press has to offer. Also, 11 other back geared and plain flywheel models starting at 6 tons.

Write for literature.

*Trouble-free because of no end thrust, no springs, no keys and no shifting parts. Pneumatic clutch element on the flywheel constricts to grip the drum on the crankshaft flange.

L&J PRESS CORPORATION
1628 STERLING AVENUE
ELKHART, INDIANA

NEW PRODUCTS and equipment

shank. The chuck is available with any shank or adaptor for holding boring bars, drills, end mills and similar tools. Last Word Sales Co., Dept. ST, 18500 Mt. Elliot, Detroit 34, Mich.

FOR MORE DATA—CIRCLE REPLY CARD NO. 21

Spring and Ratchet Bench Vise

. . . instant, nonslip adjustment



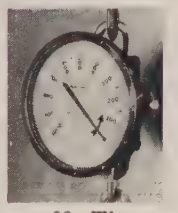
Bench vise, designed with spring and ratchet arrangement, adjusts instantly to produce nonslip grip. Chain is hooked around pipe as usual, then handle is depressed to adjust tension. The sliding ratchet holds the handle down and maintains tension on the chain until released. Design eliminates the slow tension screw adjustment method.

The vise is available in two sizes, one for ½ to 2-inch pipe; the other for ¼ to 4-inch pipe. Springload Mfg. Corp., Dept. ST, 2412 Aurora Ave., Seattle 9, Wash.

FOR MORE DATA—CIRCLE REPLY CARD NO. 22

Pour-Off Batching Scale

. . . has reverse reading dial



Line of hydraulic hoist and crane scales is expanded by the addition of this batching scale for measuring pour-off. The new Hydroscale has a reverse reading dial. As the contents are poured off after a container is lifted, the pointer retreats to register directly the amount of decreased weight. No subtraction or computation is necessary.

After one pour, the dial can be reset at zero for succeeding pours; it can be reset to zero for the full 160 degrees.

The scale has wide application in batching of medium and large quantities of liquids and loose material in paint, chemical and metal casting industries. Scales are available in 500 and 100-pound models, with 12-inch dials. Hydroway Scales Inc., Dept. ST, 20624 W. Eight Mile Rd., Detroit 19, Mich.

FOR MORE DATA—CIRCLE REPLY CARD NO. 23

ACCO products CHECK

☐ **Shaped Wire***

— Flat
● Round
◙ Odd contour

Low or high carbon, stainless, special alloy, Armco. You draw the shape—PAGE can draw the wire.

☐ **Armature Banding Wire**

Tinned stainless or carbon steel. In reels of 50 to 200 pounds. Stainless has high tensile strength, high resistance, low permeability.

☐ **Lock Safety Wire**

Tough, durable, workable. In the size and type for your work.

☐ **Spring Wire**

Any shape* . . . high carbon . . . hard drawn . . . high tensile . . . stainless . . . galvanized . . . tinned . . . bright.

*Cross-sectional areas up to .250" square; widths to ⅜"; width-to-thickness ratio not exceeding 6 to 1.

YOU do this—
Give us the specifications of the wire you need—or tell us details of job to be done.

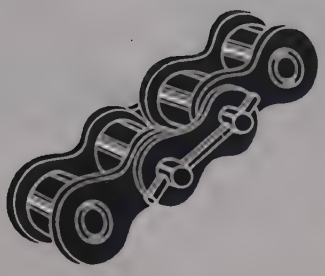
WE'LL do this—
Send you recommendations, prices and delivery date. Samples on request. PAGE offers you a wide variety of wires to choose from.

Wire or Write Today

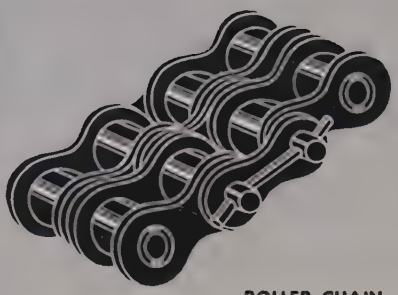
PAGE WIRE

ACCO
PAGE STEEL AND WIRE DIVISION
AMERICAN CHAIN & CABLE
TRADE MARK

Monessen, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Portland, San Francisco, Bridgeport, Conn.



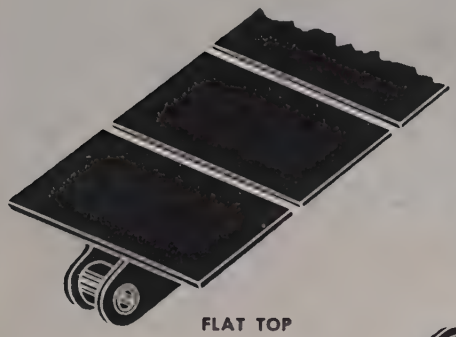
ROLLER CHAIN
SINGLE STRAND



ROLLER CHAIN
DOUBLE STRAND

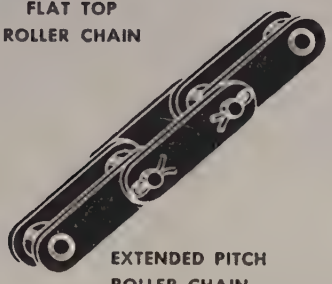


ROLLER CHAIN
TRIPLE STRAND



FLAT TOP
ROLLER CHAIN

IT'S A FACT-



EXTENDED PITCH
ROLLER CHAIN
STANDARD DIAMETER ROLLERS

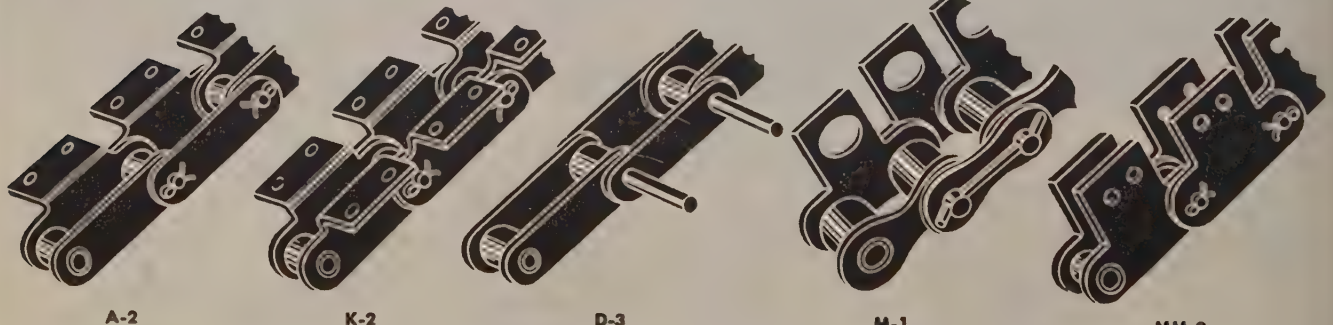


EXTENDED PITCH
ROLLER CHAIN
LARGE DIAMETER ROLLERS



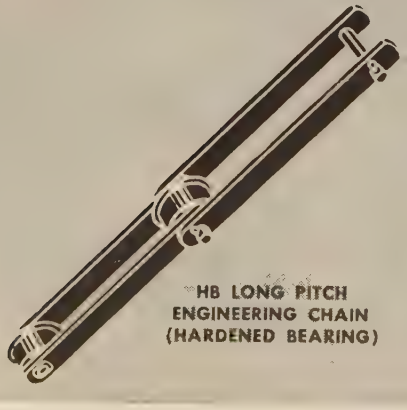
ROLLER CHAIN SPROCKET
STYLE A

SOME OF THE AVAILABLE UNION ROLLER CHAIN ATTACHMENTS

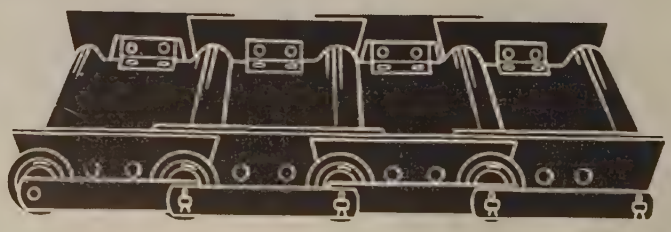


A-2 K-2 D-3 M-1 MM-2

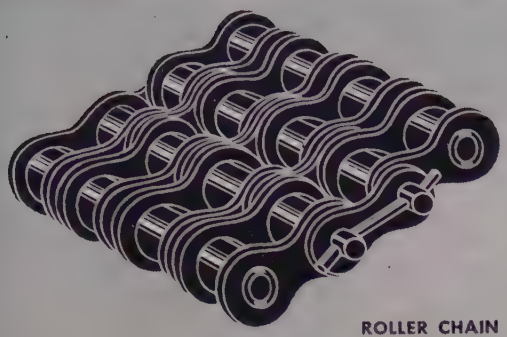
OTHER TYPICAL UNION CHAIN PRODUCTS



HB LONG PITCH
ENGINEERING CHAIN
(HARDENED BEARING)



APRON CONVEYOR STYLE B

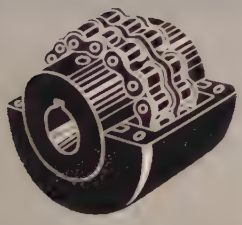


ROLLER CHAIN
QUADRUPLE STRAND

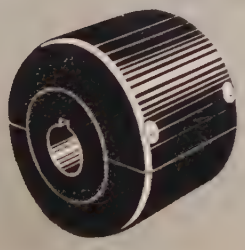
THERE ARE 381 ROLLER CHAINS AND ROLLER CHAIN ATTACHMENTS IN OUR CATALOG A-3....



ROLLER CHAIN SPROCKET
STYLE B



ROLLER CHAIN
FLEXIBLE COUPLING
(COVER OPEN)



ROLLER CHAIN
FLEXIBLE COUPLING
(COVER CLOSED)

OUR 40th YEAR

TRANSMIT POWER
UNION CHAINS
CONVEY MATERIALS

...and we will recommend the best one for your job...

The fact that we make 381 different sizes of finished steel roller chains and varieties of attachments illustrates two things. First, the great efficiency and adaptability of roller chain for an almost unlimited variety of power transmission and conveying uses. And second, our ability to recommend and supply the best pitch, width, sprockets and attachments for any given application. Furthermore, if your requirement can be better served with silent chain or heavy drive and conveying chain, we'll say so, *for we make them all.*

Any of our representatives (see list below) or members of our engineering staff at the home office will be glad to draw on their wealth of experience if you should decide to give them your next roller chain assignment. *The Union Chain and Manufacturing Company, Sandusky, Ohio.*

WRITE FOR OUR CATALOGS

UNION CHAIN REPRESENTATIVES

CALIFORNIA
American Chain & Gear Co.
C. A. Nicholas
5511 Pacific Blvd.
Huntington Park, Calif.
Phone: Lucas 7215
Charles A. Fowler
889 Bryant
San Francisco 3, Calif.
Phone: Underhill 3-5010

COLORADO
Allen Bearings Supply Co.
1300 Market Street
Denver 4, Colorado
Phone: Main 2211

GEORGIA
H. F. Edge
Walton Bldg.
Atlanta, Ga.
Phone: Alpine 3241

IDAHO
Western Bearings, Inc.
520 Front Street
Boise, Idaho
Phone: 2-6583
Western Bearings, Inc.
156 Third St.
Pocatello, Idaho
Phone: 3518

ILLINOIS
Union Chain & Mfg. Co.
A. C. Mohr, Brad Nelson,
W. R. Albrecht
53 W. Jackson Blvd.
Chicago 4, Illinois
Phone: Wabash 2-3886

INDIANA
Paul W. Huddlestun
5745 Guilford Ave.
Indianapolis 20, Ind.
Phone: Broadway 1341

KENTUCKY
Fred W. Borrow
1218 Summit Drive
Lexington, Kentucky
Phone: 43820

LOUISIANA
F. N. Johnston Co., Inc.
236 Humble Oil Bldg.
New Orleans 15, La.
Phone: Audubon 1364

MASSACHUSETTS
Transmission Eng. Co.
Stan Johnson
6 Hartford St.
Newton Highlands 61, Mass.
Phone: LaSalle 7-2822

MICHIGAN
Union Chain & Mfg. Co.
W. J. White
Basso Bldg.
Detroit 2, Michigan
Phone: Trinity 3-8825

MINNESOTA
F. H. Bathke Co.
490 N. Snelling Ave.
St. Paul 4, Minnesota
Phone: Nestor 6575
Nestor 2721

MISSOURI
James B. Flaherty
101 South Meramec
St. Louis 5, Missouri
Phones: Delmar 2923-24
Ed. Schiefelbein
311 West Tenth St.
Kansas City 6, Missouri
Phone: Jefferson 3332

NEW YORK
J. B. Foley
107 Tully St.
Syracuse 4, New York
Phone: 4-8597
Mays & Gleason, Inc.
50 Church St.
New York 7, N. Y.
Phone: Worth 4-2253
Potter & Dugan, Inc.
29 Wilkeson St.
Buffalo, New York
Phone: Cleveland 1474

NORTH CAROLINA
M. R. Snyder Co.
304 E. Tremont Ave.
Charlotte 3, North Carolina
Phone: 4-7190

OHIO
Union Chain & Mfg. Co.
F. H. Dalrymple &
Frank Smiley
Marshall Bldg.
Cleveland 13, Ohio
Phone: Main 1-4925

OREGON
J. W. Minder Ch. & Gear Co.
307 S.E. Hawthorne Blvd.
Portland 14, Oregon
Phone: Empire 1131

PENNSYLVANIA
David Davies
P.O. Box 4
Plymouth, Pennsylvania
Phone: 9-1103
Ritter Engineering Co.
Wayne G. Ritter
3031 West Liberty Ave.
Pittsburgh 16, Pa.
Phone: Locust 1-1303
The Union Chain & Mfg. Co.
John A. Shoemaker
32 Rittenhouse Place
Ardmore, Pennsylvania
Phone: Midway 2-8006

TEXAS
Union Chain & Mfg. Co.
J. H. Castleberry &
Claude Hall
1334 Fidelity Union Life Bldg.
Dallas 1, Texas
Phone: Randolph 4020

UTAH
Lundin & May Company
454 W. Fifth St., N.
Salt Lake City, Utah
Phone: 9-2005

VIRGINIA
C. Arthur Weaver
403 E. Franklin St.
Richmond 19, Virginia
Phone: 2-6649

WASHINGTON
Garrett and Shafer Eng. Wks.
322-324 First Ave., S.
Seattle, Washington
Phone: Main 7983

WISCONSIN
Union Chain & Mfg. Co.
Brad Nelson
508 Wisconsin Tower Bldg.
Milwaukee 3, Wisconsin
Phone: Broadway 2-4350

SPECIAL REPRESENTATIVES

NEW YORK
E. F. Gahan
500 Fifth Ave.
New York, New York
Phone: Lakawana 4-4857

OREGON
Union Chain & Mfg. Co.
W. D. Hollingworth
400 Concord Bldg.
Portland 4, Oregon
Phone: Atwater 9211

CANADIAN REPRESENTATIVES
Galbraith & Sulley, Ltd.
1441 West Fifth Avenue
Vancouver, B. C., Canada
Hewitt-Robins (Canada) Ltd.
2052 St. Catherine St., W.
Montreal, Quebec, Canada

THE UNION CHAIN AND MANUFACTURING COMPANY
Sandusky, Ohio, U.S.A.



Small additions of **MCA RARE EARTHS IN NODULAR IRON** help to produce consistently good ductility by counteracting tramp elements such as lead and titanium.

Operating the **world's largest** Rare Earth deposits, Molybdenum Corporation has conducted extensive research in its properties, application and possibilities.

MCA metallurgists will be glad to furnish information on how MCA Rare Earths may assist in your nodular iron problems.

As recognized authorities in the application of Molybdenum, Tungsten, Boron, Rare Earths, and the alloys and chemical elements of these materials, MCA assures confidential and immediate response to inquiries.

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Grant Building **Pittsburgh 19, Pa.**

Offices: Chicago, Cleveland, Detroit, Los Angeles, New York, Pittsburgh, San Francisco
Sales Representatives: Edgar L. Fink, Detroit; Brumley-Donaldson Co., Los Angeles, San Francisco
Subsidiary: Cleveland-Tungsten, Inc., Cleveland, Ohio
Plants: Washington, Pa. and York, Pa.

MCA

The Market Outlook

DON'T COUNT on rising steel prices to increase the availability of steel by reducing demand. As long as steel consumers continue to enjoy their present high level of business they will buy steel regardless of price.

And if they have no more than a moderate decline in business, don't expect a great surplus of steel to be available. Any substantial drop in demand for steel will inspire steel producers to put some steelmaking capacity on a stand-by basis or to retire it permanently.

MARGINAL—Some of the country's record-breaking capacity for producing steel is in operation only because of the heavy demand for steel. Some of this capacity is old and can be operated only at high cost One example of such facilities is the No. 3 open-hearth shop at the Homestead Works of U. S. Steel Corp. Suddenly taken out of operation a few weeks ago as a safety measure, the loss of the shop's million tons of ingot capacity is being keenly felt now through delays in order fulfillment and reduced availability of heavy products for future delivery.

Granite City Steel Co., Granite City, Ill., which is building three new open-hearth furnaces, may later put nine small open hearths on stand-by basis, depending on business.

SHORT-TERM— Any of the country's capacity that might become surplus will not remain that way for long, thinks Republic Steel Corp. It states in its annual report that it believes any decline in steel production in the next few months will be of relatively short duration and that by 1955 population and family formation increases will result in the return of a rising market and demand.

A LOT TO DO—Looking forward to a good market for steel, although it may be fraught with competition, U. S. Steel Corp. is working on 1100 plant improvement and replacement projects costing $25,000 or more each.

NEW PRICE TAGS—In the midst of the strong demand for steel, steel companies continue to make steel price adjustments, most of them upward and most of them through changes in extras. On a few products, base prices have been upped, but no general increase in base prices is expected unless the steelworkers win a pay increase in the forthcoming wage talks.

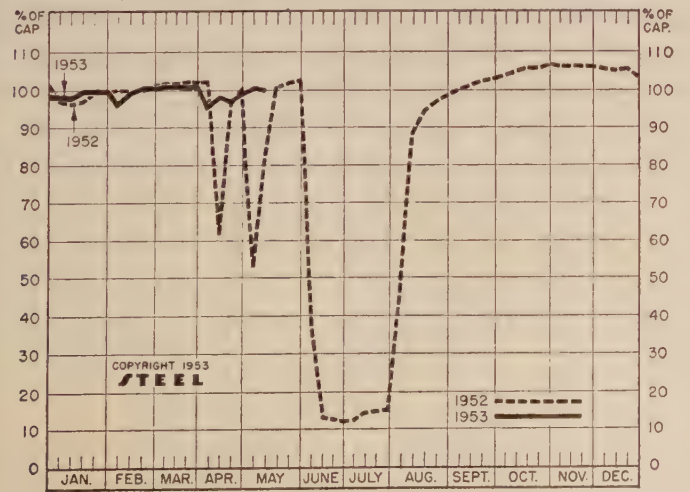
The industry will not be stampeded into granting a wage boost. This time the government will not interfere with the negotiations. As one of its bargaining points, the industry is likely to introduce at the negotiations a new means of measuring worker productivity. Study has been under way for some time on such a new yardstick.

CHEAPER MATERIALS—While steel prices are going upward, some of the raw materials for making of steel are going down. Fluorspar, a flux used in steelmaking, is one. Reflecting competition from Mexico, fluorspar from Illinois was reduced 50 cents to $2 a ton. Another steelmaking material on which prices are declining is scrap. STEEL's price composite on it declined to $39.67 in the week ended May 7 from $41.67 the preceding week.

BUSY TIMES—Reflecting continued high assembly projections by the automobile industry, the demand for forms of steel used in autos remains strong. This puts a particularly heavy load on producers of hot-rolled and cold-rolled carbon sheets.

High rate of steel production continues. In the week ended May 9, output of steel for ingots and castings was at 100 per cent of capacity, down 0.5 point from the preceding week.

NATIONAL STEELWORKS OPERATIONS



DISTRICT INGOT RATES

(Percentage of capacity engaged at leading production points)

	Week Ended May 9	Change	Same Week 1952	Same Week 1951
Pittsburgh	96	— 1*	82.5	101
Chicago	106	— 0.5*	83	109
Mid-Atlantic	97.5	0	86	101
Youngstown	106	0	70	106
Wheeling	101	0	91	98.5
Cleveland	102	— 0.5*	87	101
Buffalo	106.5	0	104	104
Birmingham	101	— 1	50	100
New England	92	+ 6	55	98
Cincinnati	97.5	0	90	105
St. Louis	92	0	78	86.5
Detroit	108	— 1	82	106
Western	109	— 1	92.5	104
Estimated National Rate	100	— 0.5	83	104

*Change from preceding week's revised rate.

Weekly steelmaking capacity is estimated at 2,254,459 net tons in 1953; 2,077,040 tons in 1952; 1,999,034 tons in 1951.

The Metalworking Outlook—p. 67 Production-Engineering News—p. 115

Composite Market Averages

FINISHED STEEL PRICE INDEX: Bureau of Labor Statistics	May 5 1953	Apr. 28 1953	Month Ago	April Average
(1947-1949=100)	132.2	131.0	130.7	130.7

AVERAGE PRICES (BUREAU OF LABOR STATISTICS)
Week Ended May 5, 1953

Units are 100 lb except where otherwise noted below in parentheses. For complete description of products see insert following p. 28, STEEL, Sept. 8, 1952.

Rails	$3.925	Sheets, C.R. carbon	$5.275
Track spikes	6.688	Sheets, galv.	6.765
Track bolts	10.175	Strip, C.R., carbon	5.100
Tie plates	4.875	Strip, C.R. stainless (lb)	0.333
Joint bars	5.000	Pipe, black, buttweld (100 ft)	7.090
Plates, carbon	4.150	Pipe, galv., buttweld (100 ft)	8.778
Structural shapes	4.200	Boiler tubes (100 ft)	31.663
Bars, tool steel (lb)	1.576	Tin plate (100 lb base box)	8.950
Bars, 3120 alloy	7.025	Terne plate (100 lb base box)	7.750
Bars, stainless (lb)	0.153	Wire, carbon, merchant	6.075
Bars, carbon	4.400	Wire, fence, galv.	6.425
Bars, reinforcing	4.150	Nails (100 lb kegs)	7.410
Bars, C.F. carbon	6.275	Wire, barbed (80 rod spool)	5.880
Sheets, H.R. carbon	4.125	Woven wire fence (20 rod roll)	13.629

FINISHED PRICE INDEX, Weighted: Calculated by STEEL*	May 7 1953	Week Ago	Month Ago	Year Ago	5 Yrs. Ago
Index (1935-39 av.=100)	181.31	181.31	181.31	171.92	135.91
Index in cents per lb.	4.912	4.912	4.912	4.657	3.682

ARITHMETICAL PRICE COMPOSITES: Calculated by STEEL*					
Finished Steel NT	$110.98	$110.98	$110.98	$106.32	$80.27
No. 2 Fdry, Pig Iron, GT	55.04	55.04	55.04	52.54	39.65
Basic Pig Iron, GT	54.66	54.66	54.66	52.16	39.18
Malleable Pig Iron, GT	55.77	55.77	55.77	53.27	40.26
Steelmaking Scrap, GT	39.67	41.67	43.75	43.00	40.67

* For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composite, STEEL, Sept. 1, 1952, p. 130.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED MATERIALS	May 7 1953	Week Ago	Month Ago	Year Ago	5 Yrs. Ago
Bars, H.R., Pittsburgh	3.95	3.95	3.95	3.70	2.875
Bars, H.R., Chicago	3.95	3.95	3.95	3.70	2.875
Bars, H.R., del. Philadelphia	4.502	4.502	4.502	4.252	3.356
Bars, C.F., Pittsburgh	4.925	4.925	4.925	4.55	3.50
Shapes, Std., Pittsburgh	3.85	3.85	3.85	3.65	2.775
Shapes, Std., Chicago	3.85	3.85	3.85	3.65	2.775
Shapes, del., Philadelphia	4.13	4.13	4.13	3.95	2.968
Plates, Pittsburgh	3.90	3.90	3.90	3.70	2.925
Plates, Chicago	3.90	3.90	3.90	3.70	2.925
Plates, Coatesville, Pa.	4.35	4.35	4.35	4.15	3.45
Plates, Sparrows Point, Md.	3.90	3.90	3.90	3.70	2.95
Plates, Claymont, Del.	4.35	4.35	4.35	4.15	3.65
Sheets, H.R., Pittsburgh	3.775	3.775	3.775	3.60–75	2.775
Sheets, H.R., Chicago	3.775	3.775	3.775	3.60	2.775
Sheets, C.R., Pittsburgh	4.575	4.575	4.575	4.35	3.50
Sheets, C.R., Chicago	4.575	4.575	4.575	4.35	3.50
Sheets, C.R., Detroit	4.775	4.775	4.775	4.55	3.735
Sheets, Galv., Pittsburgh	5.075	5.075	5.075	4.80	3.90
Strip, H. R., Pitts.	3.975-4.225	3.975-4.225	3.975-4.225	3.75-4.00	3.05
Strip, H.R., Chicago	3.725	3.725	3.725	3.50	2.775
Strip, C.R., Pittsburgh	5.10-5.80	5.10-5.80	5.10-5.80	4.65-5.35	3.775
Strip, C.R., Chicago	5.35	5.35	5.35	4.90	3.60
Strip, C.R., Detroit	5.30-6.05	5.30-6.05	5.30-6.05	4.85-5.60	3.735
Wire, Basic, Pitts.	5.475-5.225	5.475-5.225	5.475-5.225	4.85-5.10	3.725
Nails, Wire, Pittsburgh	6.35	6.35	6.35	5.90-6.20	5.125
Tin plate, box, Pittsburgh	$8.95	$8.95	$8.95	$8.70	$6.65
SEMIFINISHED					
Billets, forging, Pitts. (NT)	$70.50	$70.50	$70.50	$66.00	$54.00
Wire rods, 7/32-⅜", Pitts.	4.425	4.425	4.425	4.10–30	3.175
PIG IRON, Gross Ton					
Bessemer, Pitts.	$55.50	$55.50	$55.50	$53.00	$40.00
Basic, Valley	54.50	54.50	54.50	52.00	39.00
Basic, del. Phila.	59.25	59.25	59.25	56.75	42.17
No. 2 Fdry, Pitts.	55.00	55.00	55.00	52.50	39.50
No. 2 Fdry, Chicago	55.00	55.00	55.00	52.50	39.00
No. 2 Fdry, Valley	55.00	55.00	55.00	52.50	39.50
No. 2 Fdry, del. Phila.	59.75	59.75	59.75	57.25	42.67
No. 2 Fdry, Birm.	51.38	51.38	51.38	48.88	37.88
No. 2 Fdry (Birm.) del. Cin.	58.93	58.93	58.93	55.49	42.17
Malleable, Valley	55.00	55.00	55.00	52.50	39.50
Malleable, Chicago	55.00	55.00	55.00	52.50	39.50
Charcoal, Lyles, Tenn.	68.50	68.50	68.50	66.00	55.00
Ferromanganese, Etna, Pa.	228.00	228.00	228.00	188.00	151.00*

* F.o.b. cars, Pittsburgh.

SCRAP, Gross Ton (including broker's commission)

No. 1 Heavy Melt, Pitts.	$39.50	$43.00	$44.00	$44.00	$40.25
No. 1 Heavy Melt, E. Pa.	42.00	42.50	44.50	42.50	42.50
No. 1 Heavy Melt, Chicago	37.50	39.50	41.50	42.50	39.25
No. 1 Heavy Melt, Valley	41.50	43.50	41.75	44.00	40.25
No. 1 Heavy Melt, Cleve.	39.00	41.25	42.00	43.00	39.75
No. 1 Heavy Melt, Buffalo	41.75	43.50	46.00	43.00	43.00
Rails Rerolling, Chicago	49.00	51.50	55.00	52.50	49.50
No. 1 Cast, Chicago	41.50	42.50	44.00	49.00†	69.00

†F.o.b. shipping point.

COKE, Net Ton

Beehive, Furn, Connlsvl.	$14.75	$14.75	$14.75	$14.75	$12.75
Beehive, Fdry, Connlsvl.	17.00	17.00	17.00	17.50	14.875
Oven Fdry, Chicago	24.50	24.50	24.50	23.00	19.50

PIG IRON

F.o.b. furnace prices as reported to STEEL. Minimum delivered prices are approximate and do not include 3% federal tax. Key to producing companies on pages 186-187.

PIG IRON, Gross Ton	Basic	No. 2 Foundry	Malleable	Bessemer
Bethlehem, Pa. B2	$56.50	$57.00	$57.50	$58.00
NewYork, del.	....	60.78	61.28	....
Newark, del.	59.52	60.02	60.52	61.02
Philadelphia, del.	59.25	59.75	60.25	60.75
Birmingham District				
AlabamaCity, Ala. R2	50.88	51.38	....	....
Birmingham R2	50.88	51.38	....	....
Birmingham S9	....	51.38	....	....
Woodward, Ala. W15	50.88	51.38	....	....
Cincinnati, del.	....	58.93	....	....
Buffalo District				
Buffalo R2	54.50	55.00	55.50	....
Buffalo H1	54.50	55.00	55.50	....
Tonawanda, N.Y. W12	54.50	55.00	55.50	....
No. Tonawanda, N.Y. T9	....	55.00	55.50	....
Boston, del.	65.15	65.65	66.15	....
Rochester, N.Y., del.	57.52	58.02	58.52	....
Syracuse, N.Y., del.	58.62	59.12	59.62	....
Chicago District				
Chicago I-3	54.50	55.00	55.00	55.50
Gary, Ind. U5	54.50	....	55.00	....
IndianaHarbor, Ind. I-2	54.50	....	55.00	....
So. Chicago, Ill. W14	54.50	55.00	55.00	....
So. Chicago, Ill. Y1	54.50	55.00	55.00	....
So. Chicago, Ill. U5	54.50	....	55.00	55.50
Milwaukee, del.	56.67	57.17	57.17	57.67
Muskegon, Mich., del.	....	61.30	61.30	....
Cleveland District				
Cleveland A7	54.50	55.00	55.00	55.50
Cleveland R2	54.50	55.00	55.00	....
Akron, O., del. from Cleve.	57.11	57.61	57.61	58.11
Lorain, O. N3	54.50	....	....	55.50
Duluth I-3	....	....	55.00	....
Erie, Pa. I-3	54.50	55.00	55.00	55.50
Everett, Mass. E1	....	59.50	60.00	....
Fontana, Calif. K1	60.50	61.00	....	....
GraniteCity, Ill. G4	56.40	56.90	57.40	....
St. Louis, del. (inc. tax)	57.15	57.65	58.15	....
Ironton, Utah C11	54.50	55.00	....	....
Geneva, Utah C11	54.50	55.00	....	....
LoneStar, Tex. L6	50.50	*51.00	51.00	....
Minnequa, Colo. C10	56.50	57.50	57.50	....
Rockwood, Tenn. T3	....	....	58.50	....
Pittsburgh District				
NevilleIsland, Pa. P6	....	55.00	55.00	55.50
Pitts., N.&S. sides, Ambridge Aliquippa, del.	....	56.37	56.37	56.87
McKeesRocks, del.	....	56.04	56.04	56.54
Lawrenceville, Homestead, Wilmerding, Monaca, del.	....	56.66	56.66	57.16
Verona, Trafford, del.	....	57.19	57.19	57.69
Brackenridge, del.	....	57.45	57.45	57.95
Bessemer, Pa. U5	54.50	....	55.00	55.50
Clairton, Rankin, So. Duquesne, Pa. U5	54.50	....	....	....
McKeesport, Pa. N3	54.50	....	....	55.50
Monessen, Pa. P7	56.50	....	....	....
Sharpsville, Pa. S6	....	....	55.00	55.50
Steelton, Pa. B2	56.50	57.00	57.50	58.00
Swedeland, Pa. A3	58.50	59.00	59.50	60.00
Toledo, O. I-3	54.50	55.00	55.00	55.50
Cincinnati, del.	59.97	60.47	....	....
Troy, N.Y. R2	56.50	57.00	57.50	58.00
Youngstown District				
Hubbard, O. Y1	54.50	55.00	55.00	....
Youngstown Y1	54.50	55.00	55.00	....
Youngstown U5	54.50	....	....	55.50
Mansfield, O., del.	59.15	59.65	59.65	60.15

*Low phos, southern grade.

PIG IRON DIFFERENTIALS

Silicon: Add 50 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phos iron on which base is 1.75-2.00%.
Phosphorus: Deduct 38 cents per ton for P content of 0.70% and over.
Manganese: Add 50 cents per ton for each 0.50% manganese over 1% or portion thereof.
Nickel: Under 0.50% no extra; 0.50-0.74%, incl., add $2 per ton and each additional 0.25%, add $1 per ton.

BLAST FURNACE SILVERY PIG IRON, Gross Ton

(Base 6.0-6.50% silicon; add $1.50 for each 0.5% Si)

Jackson, O. G2, J1	$65.50
Buffalo H1	66.75

ELECTRIC FURNACE SILVERY PIG IRON, Gross Ton

(Base 14.01-14.50% silicon; add $1 for each 0.5% Si to 18%; $1 for each 0.5% Mn over 1%; $2 per gross ton premium for 0.045% max P)

NiagaraFalls, N.Y. P15	$91.00
Keokuk, Iowa, Openhearth & Fdry, freight allowed K2	92.50
Keokuk, OH & Fdry., 12½ lb piglets, 16% Si, frt. allowed K2	95.50
Wenatchee, Wash., OH & Fdry., freight allowed K2	92.50

CHARCOAL PIG IRON, Gross Ton

(Low phos semi-cold blast; differential charged for silicon over base grade; also for hard chilling iron Nos. 5 & 6)

Lyles, Tenn. T3	$68.50

LOW PHOSPHORUS PIG IRON, Gross Ton

Cleveland, intermediate, A7	$59.50
Steelton, Pa. B2	62.50
Philadelphia, delivered	66.05
Troy, N.Y. R2	62.50

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NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

Primary Metals

Copper: Electrolytic 29.50-30.00c, Conn. Valley; Lake nom.; foreign electrolytic, del. 29.50-30.00c.

Brass Ingots: 85-5-5-5 (No. 115) 26.00c; 88-10-2 (No. 215) 34.75c; 80-10-10 (No. 305) 30.00c; No. 1 yellow (No. 405) 21.25c.

Zinc: Prime western 11.00c; brass special 11.25c, intermediate 11.50c; East St. Louis; high grade 12.35c, and special high grade 12.50c delivered.

Lead: Common 12.30c; chemical 12.40c; corroding, 12.40c, St. Louis.

Primary Aluminum: 99% plus, ingots 20.50c, pigs 19.50c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more but not in excess of rate applicable on 30,000 lb c.l. orders.

Secondary Aluminum: Piston alloys 22.50-24.00; No. 12 foundry alloy (No. 2 grade) 22.00-22.50; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 23.00-24.00; grade 2, 22.50-23.50; grade 3, 22.00-23.50; grade 4, 20.50-23.00.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over 27.00c, f.o.b. Freeport, Tex.

Tin: Grade A, prompt RFC, 121.50c; outside market 100.00c.

Antimony: American 99-99.8% and over but not meeting specifications below 34.50c; 99.8% and over (arsenic 0.05% max., other impurities 0.1% max.) 35.00c; f.o.b. Laredo, Tex., for bulk shipments.

Nickel: Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 60.00c; 25-lb pigs, 62.65c; "XX" nickel shot, 63.65c; "F" nickel shot or ingots, for addition to cast iron, 60.00c. Prices include import duty.

Mercury: Open market, spot, New York, $195-$197, per 76-lb flask.

Cadmium: "Regular" straight or flat forms, $2 deld.; special or patented shapes $2.15.

Beryllium-Copper: 3.75-4.25% Be, $40.00 per lb of contained beryllium, with balance as copper at market price on date of shipment, f.o.b. Reading, Pa., or Elmore, O.

Cobalt: 97.99%, $2.40 per lb for 500 lb (kegs); $2.42 per lb for 100 lb (case); $2.47 per lb under 100 lb.

Gold: U. S. Treasury, $35 per ounce.

Silver: Open market, New York 85.25c per oz.

Platinum: $90-$93 per ounce from refineries.

Paladium: $23-$24 per troy ounce.

Iridium: $165-$175 per troy ounce.

Titanium (sponge form): $5 per pound.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(Cents per pound, f.o.b. mill, effective Apr. 1, 1953. Listings are lowest quotations.)

Sheet: Copper 50.48; yellow brass 42.87; commercial bronze, 95% 49.89; 90% 48.76; red brass, 85% 47.11; 80% 45.99; best quality, 44.43; nickel silver, 18%, 59.84; phosphor-bronze grade A, 5%, 70.50.

Rod: Copper, hot-rolled 46.83; cold-drawn 48.08; yellow brass free cutting, 36.68; commercial bronze 95% 49.58; 90% 48.45; red brass 85%, 46.80; 80%, 45.68.

Seamless Tubing: Copper 50.42; yellow brass 45.78; commercial bronze, 90%, 51.32; red brass, 85%, 49.92.

Wire: Yellow brass 43.16; commercial bronze, 95%, 50.18; 90%, 49.05; red brass, 85%, 47.40; 80%, 46.28; best quality brass, 44.72.

(Base prices, effective Apr. 1, 1953)

Copper Wire: Bare, soft, f.o.b. eastern mills, 100,000 lb lots, 37.46; 30,000 lb lots, 37.58; l.c.l. 38.08. Weatherproof, 100,000 lb, 37.85; 30,000 lb, 38.10; l.c.l., 38.60. Magnet wire del., 15,000 lb or more 43.93; l.c.l., 44.68.

ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders. Effective Jan. 22, 1953.)

Sheets and Circles: 2s and 3s mill finish c.l.

Thickness Range Inches	Widths or Diameters, In., Inc.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle† Base
0.249-0.136	12-48	32.9	...	...
0.135-0.096	12-48	33.4	...	...
0.095-0.077	12-48	34.1	31.8	36.3
0.076-0.061	12-48	34.7	32.0	36.5
0.060-0.048	12-48	35.0	32.2	36.8
0.047-0.038	12-48	35.5	32.6	37.1
0.037-0.030	12-48	35.9	33.0	37.8
0.029-0.024	12-48	36.5	33.3	38.3
0.023-0.019	12-36	37.1	34.0	39.0
0.018-0.017	12-36	37.9	34.6	39.9
0.016-0.015	12-36	38.8	35.4	41.1
0.014	12-24	39.8	36.4	42.4
0.013-0.012	12-24	40.9	37.1	43.4
0.011	12-24	41.9	38.3	45.0
0.010-0.0095	12-24	43.1	39.4	46.6
0.009-0.0085	12-24	44.3	40.7	48.5
0.008-0.0075	12-24	45.8	41.9	50.3
0.007	12-18	47.3	43.4	52.6
0.006	12-18	48.9	44.8	57.6

* Lengths 72 to 180 inches. † Maximum diameter, 26 inches.

Screw Machine Stock: 5000 lb and over.

Dia. (in.) or distance across flats	—Round— 17S-T4	Hexagonal 17S-T4
0.125	56.8	...
0.156-0.188	48.0	...
0.219-0.313	45.3	...
0.375	43.7	52.4
0.406	43.7	...
0.438	43.7	52.4
0.469	43.7	...
0.500	43.7	52.4
0.531	43.7	...
0.563	43.7	49.2
0.594	43.7	...
0.625	43.7	49.2
0.688	43.7	49.2
0.750-1.000	42.6	46.4
1.063	42.6	44.8
1.125-1.500	41.0	44.8
1.563	40.5	...
1.625	39.8	43.2
1.688-2.000	39.8	...

LEAD

(Prices to jobbers f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more $17.50 per cwt; add 50c cwt 100 sq ft to 140 sq ft. Pipe: Full coils $17.50 per cwt. Traps and bends: List prices plus 30%.

ZINC

Sheets 23.00c, f.o.b. mill 36,000 lb and over. Ribbon zinc in coils, 19.50-20.50c, f.o.b. mill, 36,000 lb and over. Plates, not over 12-in., 20.75-21.75c; over 12-in., 20.75-21.75c.

"A" NICKEL

(Base prices f.o.b. mill, effective Mar. 9, 1953) Sheets, cold-rolled 86.50c. Strip, cold-rolled 92.50c. Rods and shapes, 82.50c. Plates, 84.50c. Seamless tubes 115.50c.

MONEL

(Base prices f.o.b. mill, effective Mar. 9, 1953) Sheets, cold-rolled 67.50c. Strip, cold-rolled 70.50c. Rods and shapes, 65.50c. Plates 66.50c. Seamless tubes, 100.50c. Shot and blocks, 57.00c.

MAGNESIUM

Extruded Rounds 12 in. long, 1.31 in. in diameter, less than 25 lb 58.00c-65.00c; 25 to 99 lb, 48.00c-55.00c; 100 lb to 5000 lb, 44.00c.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill) Sheets, $15; sheared mill plate, $12; strip, $15; wire, $10; forgings, $6; hot-rolled and forged bars, $6.

Plating Materials

Chromic Acid: 99.9% flakes, f.o.b. Philadelphia, carloads 27.00c; 5 tons and over 27.50c; 1 to 5 tons, 28.00c; less than 1 ton 28.50c.

Copper Anodes: Base 2000 to 5000 lb; f.o.b. shipping point, freight allowed: Flat, rolled, 42.18c; oval 41.68c.

Nickel Anodes: Rolled, oval, carbonized, carloads 81.00c; 5000 to 29,999 lb, 83.00c; 500 to 4999 lb, 85.00c; 1 to 499 lb, 89.00c, f.o.b. Cleveland.

Nickel Chloride: In 100 lb bags; 10,000 lb and over, 37.00c; 5000 to 9900 lb, 38.00c; 400 to 4900 lb, 40.00c; 300 lb, 42.00c; 200 lb, 43.00c; 100 lb, 45.00c, f.o.b. Cleveland.

Sodium Stannate: 25 lb cans only, less than 100 lb to consumers $1.10 per lb; 100 or 350 lb drums only, 100 to 600 lb 71.60c; 700 to 1900 lb, 69c; 2000 to 9900 lb, 67.3c. Freight allowed east of Mississippi and north of Ohio and Potomac rivers. Based on $1.215 tin.

Tin Anodes: Bar, 1000 lb and over, $1.42; 500 to 999 lb, $1.425; 200 to 499 lb, $1.43; less than 200 lb, $1.445. Freight allowed east of Mississippi and north of Ohio and Potomac. Based on $1.215 tin.

Zinc Cyanide: 100 lb drums, less than 10 drums 54.30c, 10 or more drums, 52.30c, f.o.b. Niagara Falls, N. Y.

Stannous Sulphate: 100 lb kegs or 400 lb bbl, less than 2000 lb $1.11; more than 2000 lb, $1.09. Freight allowed east of Mississippi and north of Ohio and Potomac rivers. Based on $1.215 tin.

Stannous Chloride (Anhydrous): In 400 lb bbl, $1.25; 100 lb kegs $1.26, f.o.b. Carteret, N. J., freight allowed on 100 lb or more. Based on $1.215 tin.

Scrap Metals

Brass Mill Allowances

(Prices in cents per pound for less than 20,000 pounds, f.o.b. shipping point; on lots over 20,000 pounds at one time, of any or all kinds of scrap, add 1 cent per pound.)

	Clean Heavy	Rod Ends	Clean Turnings
Copper	28.625	28.625	27.875
Yellow Brass	21.375	21.125	19.625
Commercial Bronze			
95%	27.250	27.000	26.500
90%	26.125	25.875	25.375
Red Brass			
85%	25.125	24.875	24.375
80%	24.125	23.875	23.375
Best Quality(71-80%)	22.500	22.250	21.750
Muntz metal	20.000	19.750	19.250
Nickel silver, 10%	25.250	25.000	12.625
Phos. Bronze, A	30.625	30.375	29.375
Naval Brass	20.000	19.750	19.250
Manganese Bronze	20.000	19.750	19.250

REFINERS' BUYING PRICES

(Cents per pound, delivered refinery, carload lots)

No. 1 copper 22.50c, nom.; No. 2 copper 21.00c, nom.; light copper 19.50c, nom.; refinery brass (60% copper) per dry copper content 19.50c.

INGOT MAKERS' COPPER AND BRASS SCRAP BUYING PRICES

(Cents per pound, carlots, delivered)

No. 1 copper 22.50; No. 2 copper, 22.00-21.00; light copper 18.50-19.50; No. 1 composition borings 18.50-19.00, nom.; No. 1 composition solids, 17.50-18.50, nom.; radiators, 13.50-14.50, nom.; heavy yellow brass solids, 13.50-14.50, nom; yellow brass turnings 12.00-13.00.

SMELTERS' BUYING PRICES FOR SCRAP ALUMINUM

(Carlots, delivered)

2S aluminum clippings, 15.50-16.50c; mixed clippings, 13.00-15.00c; old aluminum sheet, 13.00-13.50c; old aluminum cast, 13.00-13.50c; borings and turnings, 12.50-14.00c.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

Copper and brass: Heavy copper and wire, No. 1 21.00; No. 2 19.00; light copper 17.50; No. 1 composition red brass 17.00; No. 1 composition turnings 16.50; mixed brass turnings 10.00; new brass clippings 17.50; No. 1 brass rod turnings 16.00; light bross 10.00; heavy yellow brass 12.50; new brass rod ends 16.50; auto radiators, unsweated 13.00; cocks and faucets 15.00; brass pipe 16.00.

Aluminum: Clippings 2S 11.50; old sheets 8.00; crankcase 8.00; borings and turnings 5.50; pistons and struts 5.00.

Tin: No. 1 pewter 55.00; block tin pipe 80.00; No. 1 babbitt 45.00.

Lead: Heavy 9.25-9.75; battery plates 4.75-5.00; linotype and stereotype 11.00-11.50; electrotype 9.25-9.50; mixed babbitt 13.75-14.00.

Zinc: Old zinc, 4.50; new die cast scrap, 4.50; old die cast scrap, 3.50.

Nickel: Sheets and clips $1.00; rolled anodes $1.00; turnings 85.00; rod ends $1.00.

Monel: Clippings 33.00; old sheet 30.00; turnings 25.00; rods 33.00.

DAILY PRICE RECORD

1953	Copper	Lead	Zinc	Tin	Aluminum	Antimony	Nickel	Silver
May 6-7	29.50-30.00	12.30	11.00	100.00	20.50	34.50	60.00	85.25
May 5	29.50-30.00	12.30	11.00	98.00	20.50	34.50	60.00	85.25
May 4	29.50-30.00	12.30	11.00	96.50	20.50	34.50	60.00	85.25
May 1-2	29.50-30.00	12.30	11.00	93.00	20.50	34.50	60.00	85.25
Apr. Avg.	30.755	12.473	11.00	102.567	20.50	34.50	60.00	85.25
Apr. 29-30	29.50-30.00	12.30	11.00	95.00	20.50	34.50	60.00	85.25
Apr. 28	29.75-30.00	11.80	11.00	96.00	20.50	34.50	60.00	85.25
Apr. 24-27	29.50-30.00	11.80	11.00	94.00	20.50	34.50	60.00	85.25
Apr. 23	29.50-30.00	11.80	11.00	92.00	20.50	34.50	60.00	85.25
Apr. 22	30.00	11.80	11.00	93.50	20.50	34.50	60.00	85.25
Apr. 20-21	30.00-30.50	11.80	11.00	95.00	20.50	34.50	60.00	85.25
Apr. 17-18	30.00-30.50	12.30	11.00	97.50	20.50	34.50	60.00	85.25
Apr. 16	30.00-30.50	12.30	11.00	98.00	20.50	34.50	60.00	85.25
Apr. 15	30.00-32.00	12.30	11.00	95.00	20.50	34.50	60.00	85.25
Apr. 14	30.00-32.00	12.80	11.00	98.50	20.50	34.50	60.00	85.25
Apr. 13	30.00-32.00	12.80	11.00	99.50	20.50	34.50	60.00	85.25
Apr. 10-11	30.00-32.00	12.80	11.00	105.00	20.50	34.50	60.00	85.25

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime western, E. St. Louis; Tin, Straits, del. New York; Aluminum primary ingots, 99%, del.; Antimony, bulk f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9% base sizes at refinery unpacked. Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

The Metal Market

Government policies and actions still are a big factor in the nonferrous metals market. An example of this influence can be seen in pending tariff legislation

GOVERNMENT still plays a powerful role in guiding the course of metal markets, despite wholesale decontrol and attempts to get government out of business where it's not needed.

From mine to finished product, broad government policies exert strong influence. Even international actions have direct bearing on market trends. As Secretary of State Dulles says, "There is a meshing of our political, our security and our economic interests."

Topical Tariffs—Current example of this infuence can be found in pending tariff legislation before the House Ways & Means Committee. The administration recommends extension of the Reciprocal Trade Agreements Act without basic change, until a commission studies foreign economic policy.

A proposed amendment to the bill is H. R. 4294, the controversial Simpson bill, which would sharply limit the President's power to fix tariffs, take away his veto power on certain tariff commission recommendations, put specific import duties on lead and zinc, and restrict trade where injury to domestic industries are deemed threatening.

Sliding Scale—Section 13 of this bill contains the hotly-debated sliding scale tax, or "flexible fee," added to the existing duties of 1.0625 cents on lead metal and 0.7 cents on zinc metal. On lead and zinc the fee would be 1 cent plus the difference between market price and a base price, subject to complicated quarterly adjustments.

Industry and government have taken firm stands on the bill. Most U. S. producers and legislators from mining states favor it. The administration opposes it. Departments of State, Defense and Treasury testified against it. Diecasters and brass mills are outspoken in their objections. W. M. Goss, president, Copper & Brass Research Association, stated that it will "prove injurious to consumers and producers alike and will not achieve the objectives its proponents hoped for."

Temporary Troubles—Nations supplying the two metals naturally are upset. Canada, Mexico, Australia and Peru have filed protests. There's even talk about retaliatory measures.

The State department's statement on the bill noted a belief that the condition of oversupply is "probably not chronic," but short-run in nature and "not solely due to inability to compete effectively with foreign producers."

The State department also believes the proposed measure would increase instability in lead and zinc markets, encourage unwarranted speculation, increase costs to consumers, injure American export markets, and repudiate international commitments undertaken by the government. In the face of strong opposition, the bill has slight chance of passage. Some insurance against lead and zinc shifting frequently from shortage to surplus and back is recognized as necessary. Most opposition is on the ground that H. R. 4294 won't accomplish that purpose.

STEEL'S Metal Price Averages for April, 1953
(Cents per pound)

Electrolytic Copper, del. Conn.	30.755
Lead, St. Louis	12.473
Prime Western, Zinc, E. St. Louis	11.000
Straits Tin, New York	102.567
Primary Aluminum Ingots, del.	20.500
Antimony, f.o.b. Laredo, Tex.	34.500
Nickel, f.o.b. refinery	60.000
Silver, New York	85.250

New Alloy for Diecasting

A new magnesium diecasting alloy has been announced by Dow Chemical Co. Designated Dowmetal AZ 91B, it contains beryllium additions for "lower melt loss and increased efficiency." Ingot is priced at 30.5 cents, f.o.b. shipping point.

Lead Perks Up

Lead buying for the past week has been fair to good, though orders have been for small lots. Market men believe consumers have a lot to buy, even for May shipment, and aren't unduly discouraged over frequent price relapses in London. Most orders were placed at average prices. Smelting charge for battery plates now ranges from $40 to $45.

Zinc on Average Price Basis

Nearly all zinc buying is on an average price basis. Special high grade zinc still is in strong demand, but there's no great pressure on producers to cut prices to match import quotations on prime western. Some complaints have been voiced by users that imported prime western is not up to specifications.

For Copper: Flat Pricing?

Don't be surprised to see copper producers go back to a flat pricing setup instead of the present date of delivery pricing. It's the consumers who enjoy benefits of this system in a falling market. Price still hovers in the 30-cents neighborhood and producers are opening their June books already. Foreign metal is offered delivered Valley basis instead of f.a.s. New York. *E. & M. J. Markets* no longer recognizes sales of Chilean copper at 36.5 cents in its daily weighted averages, saying "A free market quotation, under prevailing circumstances, cannot include an unrealistic price fixed by a government."

Rolling Equipment Ordered

American Brass Co. has ordered $2.5 million worth of aluminum rolling equipment which will increase capacity of the company's Torrington, Conn., plant to over 1 million pounds a month. Two cold-rolling mills, annealing furnaces and slitters have been ordered.

Canada Likes U. S. Market

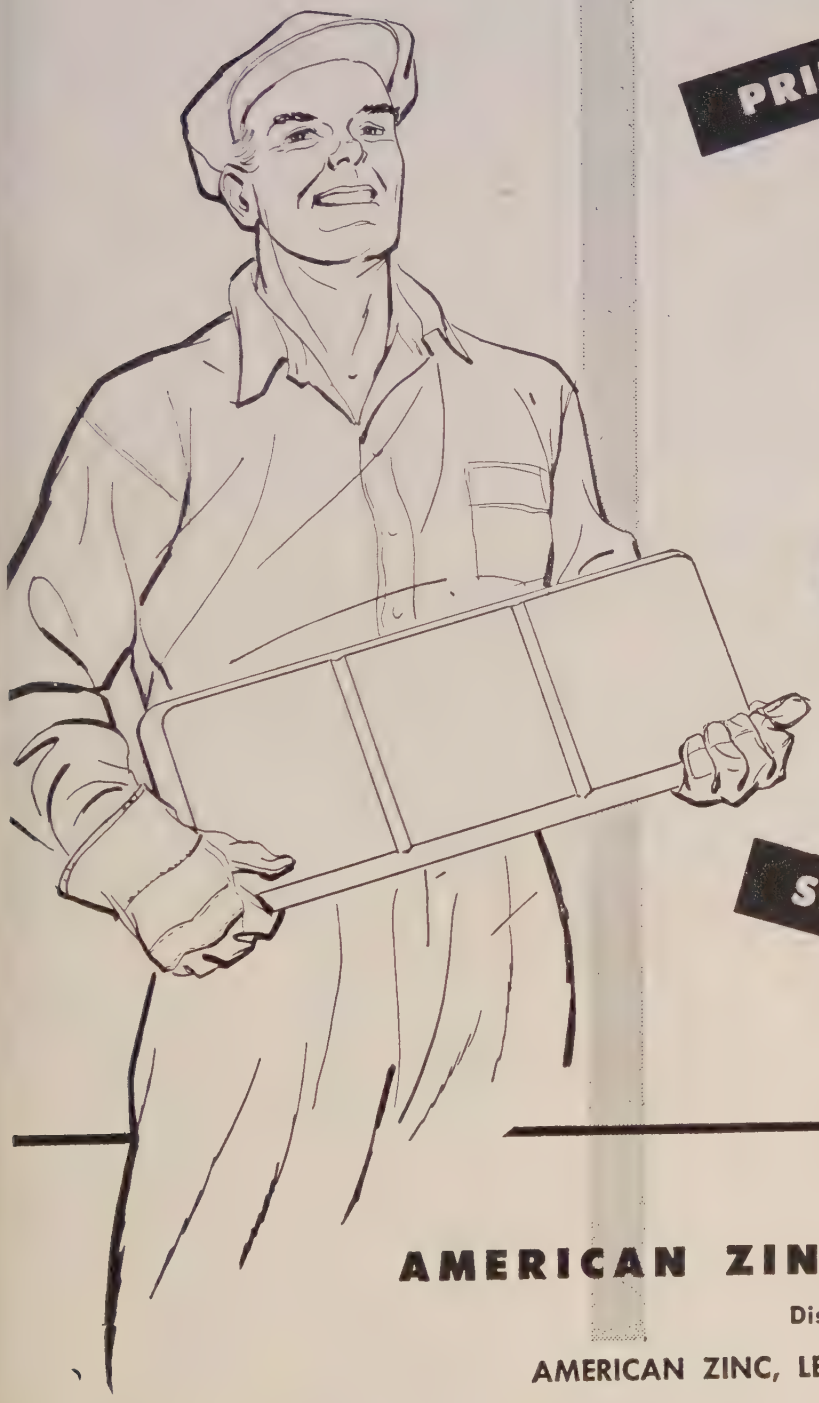
Canada will continue wooing the American market for primary aluminum. Aluminium Ltd. stockholders heard Nathanael V. Davis, president, tell the annual meeting that the company anticipates a long-range growth in U. S. requirements which it believes American sources will be hard put to satisfy. The company already has forward sales contracts with industrial consumers in the U. S. for about 275,000 tons of aluminum ingot to be delivered in the period of 1953-1959, Mr. Davis reported.

every grade of ZINC

for urgent military and

civilian requirements

SLAB ZINC



PRIME WESTERN

SELECT

BRASS SPECIAL

INTERMEDIATE

HIGH GRADE

SPECIAL HIGH GRADE

AMERICAN ZINC SALES COMPANY

Distributors for

AMERICAN ZINC, LEAD & SMELTING COMPANY

Columbus, O. Chicago St. Louis New York

Semifinished and Finished Steel Products

Mill prices as reported to STEEL, cents per pound except as otherwise noted. Changes shown in italics.
Code numbers following mill points indicate producing company; key on pages 186-187.

INGOTS, Carbon, Forging (NT)
Fontana,Calif. K1 ....$81.00
Munhall,Pa U5 .....54.00
Seattle S24 .....75.00

INGOTS, Alloy (NT)
Detroit R7 .....$57.00
Fontana,Calif. K1 ....83.00
Houston S5 .....65.00
Midland, Pa. C18 ....57.00
Munhall, Pa. U5 .....57.00

BILLETS, BLOOMS & SLABS
Carbon, Rerolling (NT)
Bessemer,Pa. U5 ....$59.00
ClairtonPa. U5 .....59.00
Ensley,Ala. T2 .....59.00
Fairfield, Ala. T2 ....59.00
Fontana,Calif. K1 ....78.00
Gary,Ind. U5 .....59.00
Johnstown,Pa. B2 ....59.00
Lackawanna,N.Y. B2 ..59.00
Munhall,Pa. U5 .....59.00
So.Chicago,Ill. U5 ....59.00
SoDuquesne,Pa. U5 ..59.00

Carbon, Forging (NT)
Bessemer,Pa. U5 .....$70.50
Buffalo R2 .....70.50
Canton,O. R2 .....70.50
Clairton,Pa. U5 .....70.50
Cleveland R2 .....70.50
Conshohocken,Pa. A3 ..77.50
Detroit R7 .....73.50
Ensley,Ala. T2 .....70.50
Fairfield,Ala. T2 .....70.50
Fontana,Calif. K1 ....89.50
Gary,Ind. U5 .....70.50
Geneva,Utah C11 .....70.50
Houston S5 .....78.50
Johnstown,Pa. B2 ....70.50
Lackawanna,N.Y. B2 ..70.50
LosAngeles B3 .....89.50
Munhall,Pa. U5 .....70.50
Seattle B3, S24 .....89.50
So.Chicago R2,U5,W14.70.50
So.Duquesne,Pa. U5 ...70.50
So.SanFrancisco B3 ..89.50

Alloy, Forging (NT)
Bethlehem,Pa. B2 ....$76.00
Buffalo R2 .....76.00
Canton,O. R2 .....76.00
Canton,O. T7 .....78.60
Conshohocken,Pa. A3 ..83.00
Detroit R7 .....79.00
Fontana,Calif. K1 ....95.00
Gary,Ind. U5 .....76.00
Houston S5 .....84.00
Ind.Harbor,Ind. Y1 ....76.00
Johnstown,Pa. B2 ....76.00
Lackawanna,N.Y. B2..76.00
LosAngeles B3 .....96.00
Massillon,O. R2 .....76.00
Midland,Pa. C18 .....76.00
Munhall,Pa. U5 .....76.00
Seattle S24 .....96.00
So.Chicago R2,U5,W14.76.00
So.Duquesne,Pa. U5 ..76.00
Struthers,O. Y1 .....76.00
Warren,O. C17 .....76.00

ROUNDS, SEAMLESS TUBE (NT)
Buffalo R2 .....$87.50
Canton,O. R2 .....87.50
Cleveland R2 .....87.50
Fontana,Calif. K1 ....108.50
Gary,Ind. U5 .....87.50
Massillon,O. R3 .....87.50
So.Chicago,Ill. R2 ....87.50
So.Duquesne,Pa. U5 ..87.50

SHEET BARS (NT)
Fontana,Calif. K1 ...$93.18

SKELP
Aliquippa,Pa. J5 .....3.65
Munhall,Pa. U5 .....3.55
Warren,O. R2 .....3.55
Youngstown R2, U5 ....3.55

WIRE RODS
Alton,Ill. L1 .....4.70
AlabamaCity, Ala. R2..4.325
Buffalo W12 .....4.325
Cleveland A7 .....4.325
Donora,Pa. A7 .....4.325
Fairfield,Ala. T2 .....4.325
Fontana,Calif. K1 ....5.125
Houston S5 .....4.725
Johnstown,Pa. B2 ....4.325
Joliet,Ill. A7 .....4.325
KansasCity,Mo. S5 ....4.665
LosAngeles B3 .....5.125
Minnequa,Colo. C10 ...4.575
Monessen,Pa. P7 .....4.525
No.Tonawanda,N.Y.B11 4.325
Pittsburg,Calif. C11 ...4.975
Portsmouth,O. P12 ....4.525
Roebling, N. J. R5 ....4.425
So. Chicago,Ill. R2 ....4.325
SparrowsPoint,Md. B2..4.425
Sterling,Ill.(1) N15 ...4.325
Struthers,O. Y1 .....4.325
Torrance,Calif. C11 ...5.125
Worcester,Mass. A7 ...4.625

SHEET STEEL PILING
Ind.Harbor,Ind. I-2 ...4.675
Lackawanna,N.Y. B2 ..4.675
Munhall,Pa. U5 .....4.675
So.Chicago,Ill. U5 ....4.675

STRUCTURALS
Carbon Steel Stand. Shapes
AlabamaCity, Ala. R2 ..3.85
Aliquippa,Pa. J5 .....3.85
Bessemer,Ala. T2 .....3.85
Bethlehem,Pa. B2 ....3.90
Clairton,Pa. U5 .....3.85
Fairfield,Ala. T2 .....3.85
Fontana,Calif. K1 .....4.50
Gary,Ind. U5 .....3.85
Geneva,Utah C11 .....3.85
Houston S5 .....4.25
Ind.Harbor,Ind. I-2 ...3.85
Johnstown,Pa. B2 .....3.90
KansasCity,Mo. S5 ....4.45
Lackawanna,N.Y. B2 ..3.90
LosAngeles B3 .....4.45
Minnequa,Colo. C10 ...4.30
Munhall,Pa. U5 .....3.85
Niles,Calif.(22) P1 ....4.56
Phoenixville,Pa. P4 ....4.95
Seattle B3 .....4.50
So.Chicago,Ill. U5, W14.3.85
So.SanFrancisco B3 ....4.40
Torrance,Calif. C11 ....4.45
Weirton,W.Va. W6 ....4.10

Wide Flange
Bethlehem,Pa. B2 .....3.90
Clairton,Pa. U5 .....3.85
Fontana,Calif. K1 .....5.05
Lackawanna,N.Y. B2 ..3.90
Munhall,Pa. U5 .....3.85
So. Chicago,Ill U5 ....3.85

Alloy Stand. Shapes
Clairton,Pa. U5 .....4.725
Fontana,Calif. K1 ....6.125
Gary,Ind. U5 .....4.725
Munhall,Pa. U5 .....4.725
So.Chicago,Ill. U5 ....4.725

H.S., L.A. Stand. Shapes
Aliquippa,Pa. J5 .....5.80
Bessemer,Ala T2 .....5.80
Bethlehem,Pa. B2 .....5.80
Clairton,Pa. U5 .....5.80
Fairfield,Ala T2 .....5.80
Fontana,Calif. K1 ....6.45
Gary,Ind. U5 .....5.80
Geneva,Utah C11 .....5.80
Ind.Harbor,Ind. I-2 ....5.80
Ind.Harbor,Ind Y1 ....6.30
Johnstown,Pa. B2 .....5.80
Lackawanna,N.Y. B2 ..5.80
LosAngeles B3 .....6.35
Munhall,Pa. U5 .....5.80
Seattle B3 .....6.40
So.Chicago,Ill. U5 .....5.80
So.SanFrancisco B3 ....6.30
Struthers,O. Y1 .....6.30

H.S., L.A. Wide Flange
Bethlehem,Pa. B2 .....5.80
Lackawanna,N.Y. B2 ..5.80
Munhall,Pa. U5 .....5.75
So.Chicago,Ill. U5 .....5.75

BEARING PILES
Munhall,Pa. U5 .....3.85
So.Chicago,Ill. U5 .....3.85

PLATES,High-Strength Low-Alloy
Aliquippa,Pa. J5 .....5.95
Bessemer,Ala. T2 .....5.95
Clairton,Pa. U5 .....5.95
Cleveland J5, R2 .....5.95
Conshohocken,Pa. A3 ...6.20
Ecorse,Mich. G5 .....6.90
Fairfield,Ala. T2 .....5.95
Fontana,Calif.(30) K1 ..6.65
Gary,Ind. U5 .....5.95
Geneva,Utah C11 .....5.95
Ind.Harbor,Ind. I-2 ...5.95
Ind.Harbor,Ind. Y1 ....6.45
Johnstown,Pa. B2 ....5.95
Munhall,Pa. U5 .....5.95
Pittsburgh J5 .....5.95
Seattle B3 .....6.85
Sharon,Pa. S3 .....5.95
So.Chicago,Ill. U5 .....5.95
SparrowsPoint,Md. B2..5.95
Warren,O. R2 .....5.95
Youngstown Y1 .....6.45
Youngstown U5 .....5.95

PLATES, Open-Hearth Alloy
Claymont,Del. C22 ....5.35
Coatesville,Pa. L7 .....5.75
Conshohocken,Pa. A3 ..5.55
Fontana,Calif. K1 ....6.30
Gary,Ind. U5 .....5.25
Johnstown,Pa. B2 .....5.25
Munhall,Pa. U5 .....5.25
Sharon,Pa. S3 .....5.70
So.Chicago,Ill. U5 .....5.25
SparrowsPoint,Md. B2..5.25

FLOOR PLATES
Cleveland J5 .....4.95
Conshohocken,Pa. A3 ..4.95
Ind.Harbor,Ind. I-2 ....4.95
Munhall,Pa. U5 .....4.95
So.Chicago, Ill. U5 ....4.95

PLATES, Ingot Iron
Ashland,c.l. (15) A10 ..4.15
Cleveland,c.l. R2 .....4.50
Warren,O., c.l. R2 ....4.50

PLATES, Carbon Steel
AlabamaCity,Ala. R2 ..3.90
Aliquippa,Pa. J5 .....3.90
Ashland,Ky. (15) A10 ..3.90
Bessemer,Ala. T2 .....3.90
Clairton,Pa. U5 .....3.90
Claymont,Del. C22 .....4.35
Cleveland J5, R2 .....3.90
Coatesville,Pa. L7 .....4.35
Conshohocken,Pa. A3 ..4.35
Ecorse,Mich. G5 .....4.45
Fairfield,Ala. T2 .....3.90
Fontana,Calif.(30) K1..4.55
Gary,Ind. U5 .....3.90
GraniteCity,Ill. G4 ....4.60
Geneva,Utah C11 .....3.90
Harrisburg,Pa. C5 ....6.50
Houston S5 .....4.30
Ind.Harbor,Ind. I-2, Y1.3.90
Johnstown,Pa. B2 .....3.90
Lackawanna,N.Y. B2 ..3.90
Minnequa,Colo. C10 ....4.70
Munhall,Pa. U5 .....3.90
Pittsburgh J5 .....3.90
Seattle B3 .....4.80
Sharon,Pa. S3 .....4.15
So.Chicago,Ill. U5, W14.3.90
SparrowsPoint,Md. B2 ..3.90
Stubenville,O. W10 ....3.90
Warren,O. R2 .....3.90
Weirton,W.Va. W6 .....4.20
Youngstown R2, U5, Y1.3.90

PLATES, Carbon A.R.
Fontana,Calif. K1 .....5.70
Geneva,Utah C11 .....5.05

PLATES, Wrought Iron
(Add 4.7% to base and extras)
Economy,Pa. B14 .....8.60

BARS, Hot-Rolled Carbon
AlabamaCity,Ala. R2 ..3.95
Aliquippa,Pa. J5 .....3.95
Alton,Ill. L1 .....4.50
Atlanta,Ga. A11 .....4.50
Bessemer,Ala. T2 .....3.95
Buffalo R2 .....3.95
Canton,O. R2 .....3.95
Clairton,Pa. U5 .....3.95
Cleveland R2 .....3.95
Detroit R7 .....4.10
Ecorse,Mich. G5 .....4.30
Emeryville,Calif. J7 ....4.70
Fairfield,Ala. T2 .....3.95
Fontana,Calif. K1 .....4.65
Gary,Ind. U5 .....3.95
Houston S5 .....4.35
Ind.Harbor,Ind. I-2, Y1.3.95
Johnstown,Pa. B2 .....3.95
KansasCity,Mo. S5 ....4.55
Lackawanna,N.Y. B2 ..3.95
LosAngeles B3 .....4.65
Milton,Pa. B6 .....4.55
Minnequa,Colo. C10 ....4.40
Niles,Calif. P1 .....4.65
N.Tonawanda,N.Y. B11.3.95
Pittsburg,Calif. C11 ....4.65
Pittsburgh J5 .....3.95
Seattle B3, N14, S24 ..4.70
So.Chicago R2,U5,W14 ..3.95
So.Duquesne,Pa. U5 ...3.95
So.SanFran.,Calif. B3...4.70
Sterling,Ill. N15 .....4.55
Struthers,O. Y1 .....3.95
Torrance,Calif. C11 ....4.65
Weirton,W.Va. W6 ....4.10
Youngstown R2, U5 ....3.95

BAR SHAPES, Hot-Rolled Alloy
Clairton,Pa. U5 .....4.925
Gary,Ind. U5 .....4.925
Youngstown U5 .....4.925

BAR SIZE ANGLES; S. Shapes
Aliquippa,Pa. J5 .....3.95
Atlanta A11 .....4.50
Niles,Calif. P1 .....4.65
SanFrancisco S7 .....5.00

BAR SIZE ANGLES; H.R.CARBON
Bethlehem,Pa. B2 .....4.15

BARS,Hot-Rolled Alloy
Bethlehem,Pa. B2 .....4.675
Buffalo R2 .....4.675
Canton,O. T7 .....4.72
Canton,O. R2 .....4.675
Clairton,Pa. U5 .....4.675
Detroit R7 .....4.825
Ecorse,Mich. G5 .....5.025
Fontana,Calif. K1 ....7.175
Gary,Ind. U5 .....4.675
Houston S5 .....5.075
Ind.Harbor,Ind. I-2, Y1.4.675
Johnstown,Pa. B2 ....4.675
KansasCity,Mo. S5 ....5.275
Lackawanna,N.Y. B2 ..4.675
LosAngeles B3 .....5.725
Massillon,O. R2 .....4.675
Midland,Pa. C18 .....4.675
So.Chicago R2,U5,W14.4.675
So.Duquesne,Pa. U5 ..4.675
Struthers,O. Y1 .....4.675
Warren,O. C17 .....4.675
Youngstown U5 .....4.675

BARS & SMALL SHAPES, H. R. High-Strength Low-Alloy
Aliquippa,Pa. J5 .....5.925
Bessemer,Ala. T2 .....5.925
Bethlehem,Pa. B2 .....5.925
Clairton,Pa. U5 .....5.925
Cleveland R2 .....5.925
Ecorse,Mich G5 .....6.675
Fairfield,Ala. T2 .....5.925
Fontana,Calif. K1 ....6.975
Gary,Ind. U5 .....5.925
Ind.Harbor,Ind. I-2 ...5.925
IndianaHarbor,Ind. Y1.6.425
Johnstown,Pa. B2 ....5.925
Lackawanna,N.Y. B2 ..5.925
LosAngeles B3 .....6.625
Pittsburgh J5 .....5.925
Seattle B3 .....6.675
So.Duquesne,Pa. U5 ..5.925
So.San.Francisco B3 ...6.675
Struthers,O. Y1 .....6.425
Youngstown U5 .....5.925

BARS, Cold-Finished Carbon
Ambridge,Pa. W18 ...4.925
BeaverFalls,Pa. R2 ...4.925
BeaverFalls,Pa. M12..4.925
Buffalo B5 .....4.975
Camden,N.J. P13 .....5.375
Carnegie,Pa. C12 .....4.925
Chicago B5 .....4.925
Chicago W18 .....4.925
Cleveland A7, C20 ....4.925
Detroit P17, R7 .....5.075
Detroit B5 .....5.125
Donora,Pa. A7 .....4.925
Elyria,O. W8 .....4.925
FranklinPark,Ill. N5 ..4.925
Gary,Ind. R2 .....4.925
GreenBay,Wis. F7 ....4.925
Hammond,Ind. L2,M13.4.925
Hartford,Conn. R2 ....5.475
LosAngeles R2 .....6.375
Mansfield,Mass B5 ...5.475
Massillon,O. R2, R8 ..4.925
Monaca,Pa. S17 .....4.925
Newark,N.J. W18 ....5.375
Plymouth,Mich. P5 ...5.175
Pittsburgh J5 .....4.925
Putnam,Conn. W18 ...5.475
Readville,Mass. C14 ...5.475
St.Louis,Mo. M5 .....5.30
So.Chicago,Ill. W14 ...4.925
SpringCity,Pa. K3 ....5.375
Struthers,O. Y1 .....4.925
Waukegan,Ill A7 .....4.925
Youngstown Y1 .....4.925
Youngstown F3 .....4.925

BARS, Cold-Finished Alloy
Ambridge,Pa. W18 .....6.00
BeaverFalls,Pa. M12 ...6.00
Bethlehem, Pa. B2 ....6.00
Buffalo B5 .....6.00
Camden,N.J. P13 .....6.40
Canton,O. R2 .....6.00
Canton,O. T7 .....5.99
Carnegie,Pa. C12 .....6.00
Chicago B5 .....6.00
Chicago W18 .....6.00
Cleveland A7 .....6.05
Cleveland C20 .....6.00
Detroit P17, R7 .....6.15
Detroit B5 .....6.20
Donora,Pa. A7 .....6.05
Elyria,O. W8 .....6.00
Gary,Ind. R2 .....6.00
Hammond,Ind. L2,M13.6.00
Hartford,Conn. R2 .....6.45
Lackawanna,N.Y. B2 ..6.00
Mansfield,Mass. B5 ....6.45
Massillon,O. R2,R8 ....6.00
Midland,Pa. C18 .....6.00
Monaca,Pa. S17 .....6.00
Newark,N.J. W18 .....6.35
Plymouth,Mich. P5 .....6.20
So.Chicago,Ill. R2, W14.6.00
SpringCity,Pa. K3 .....6.20
Struthers,O. Y1 .....6.00
Warren,O. C17 .....6.00
Waukegan,Ill. A7 .....6.05
Worcester,Mass. A7 ....6.35
Youngstown Y1 .....6.00
Youngstown F3 .....6.00

BARS, Reinforcing (Fabricators)
AlabamaCity,Ala R2 ...3.95
Atlanta A11 .....4.50
Buffalo R2 .....3.95
Cleveland R2 .....3.95
Emeryville,Calif. J7 ....4.70
Fairfield,Ala. T2 .....3.95
Fontana,Calif. K1 .....4.65
Gary,Ind U5 .....3.95
Houston S5 .....4.35
Ind.Harbor,Ind. I-2, Y1.3.95
Johnstown,Pa. B2 .....3.95
KansasCity,Mo. S5 ....4.55
Lackawanna,N.Y. B2...3.95
LosAngeles B3 .....4.65
Milton,Pa. B6 .....4.55
Minnequa,Colo. C10 ....4.75
Niles,Calif. P1 .....4.65
Pittsburg,Calif. C11 ...4.65
Pittsburgh J5 .....3.95
SandSprings,Okla. S5 ..4.85
Seattle B3, N14, S24 ..4.70
So.Chicago,Ill. R2 .....3.95
So.Duquesne,Pa. U5 ....3.95
So.SanFrancisco B3 ....4.70
SparrowsPoint,Md. B2...3.95
Sterling,Ill. (1) N15 ....4.70
Struthers,O. Y1 .....3.95
Torrance,Calif. C11 ....4.65
Youngstown R2, U5 ...3.95

BARS, Reinforcing (Fabricated; to consumers)
Huntington,W.Va. W7 ...5.50
Johnstown, ¼-1" B2 ...5.25
KansasCity S5 .....6.05
LosAngeles B3 .....5.45
Marion,O. P11 .....5.25

Key to Producers

A1 Acme Steel Co.
A3 Alan Wood Steel Co.
A4 Allegheny Ludlum Steel
A7 American Steel & Wire
A8 Anchor Drawn Steel Co.
A9 Angell Nail & Chaplet
A10 Armco Steel Corp.
A11 Atlantic Steel Co.
A13 American Cladmetals Co.
B1 Babcock & Wilcox Co.
B2 Bethlehem Steel Co.
B3 Beth. Pac. Coast Steel
B4 Blair Strip Steel Co.
B5 Bliss & Laughlin Inc.
B6 Boiardi Steel Corp.
B8 Braeburn Alloy Steel
B11 Buffalo Bolt Co.
B12 Buffalo Steel Div., H. K. Porter Co.
B14 A. M. Byers Co.
C1 Calstrip Steel Corp.
C2 Calumet Steel Div. Borg-Warner Corp.
C4 Carpenter Steel Co.
C5 Central Iron & Steel Div. Barium Steel Corp.
C7 Cleve. Cold Rolling Mills
C8 Cold Metal Products Co.
C9 Colonial Steel Co.
C10 Colorado Fuel & Iron
C11 Columbia-Geneva Steel
C12 Columbia Steel & Shaft
C13 Columbia Tool Steel Co.
C14 Compressed Steel Shaft
C16 Continental Steel Corp.
C17 Copperweld Steel Co.
C18 Crucible Steel Co.
C19 Cumberland Steel Co.
C20 Cuyahoga Steel & Wire
C22 Claymont Steel Products Dept., Wickwire Spencer Steel Division
D2 Detroit Steel Corp.
D3 Detroit Tube & Steel
D4 Disston & Sons, Henry
D6 Driver Harris Co.
D7 Dickson Weatherproof Nail Co.
E1 Eastern Gas&Fuel Assoc.
E2 Eastern Stainless Steel
E4 Electro Metallurgical Co.
E5 Elliott Bros. Steel Co.
E6 Empire Steel Corp.
F2 Firth Sterling Inc.
F3 Fitzsimons Steel Co.
F4 Follansbee Steel Corp.
F5 Franklin Steel Div. Borg-Warner Corp.
F6 Fretz-Moon Tube Co.
F7 Ft. Howard Steel & Wire
G2 Globe Iron Co.
G3 Globe Steel Tubes Co.
G4 Granite City Steel Co.
G5 Great Lakes Steel Corp.
G6 Greer Steel Co.
H1 Hanna Furnace Corp.
I-1 Igoe Bros. Inc.
I-2 Inland Steel Co.
I-3 Interlake Iron Corp.
I-4 Ingersoll Steel Div. Borg-Warner Corp.
I-7 Indiana Steel & Wire Co.
J1 Jackson Iron & Steel Co.
J3 Jessop Steel Co.
J4 Johnson Steel & Wire Co.
J5 Jones & Laughlin Steel
J6 Joslyn Mfg. & Supply
J7 Judson Steel Corp.
J8 Jersey Shore Steel Co.
K1 Kaiser Steel Corp.
K2 Keokuk Electro Metals
K3 Keystone Drawn Steel
K4 Keystone Steel & Wire
L1 Laclede Steel Co.
L2 LaSalle Steel Co.
L3 Latrobe Steel Co.
L5 Lockhart Iron & Steel
L6 Lone Star Steel Co
L7 Lukens Steel Co.

Seattle B3 N14 .....5.80
Sand Springs S5 .....6.45
So.SanFrancisco B3 ....5.45
SparrowsPt. ¼-1" B2 ..5.25
Williamsport,Pa. S19 ...5.35

RAIL STEEL BARS
ChicagoHts.(3,4) C2 ...4.75
ChicagoHts.(3,4) I-2 ...4.75
Franklin,Pa.(3,4) F5 ...4.75
FortWorth,Tex.(26) T4..4.85
Huntngt,W.Va.(3) W7 ..5.75
Marion,O.(3) P11 .....4.75
Moline,Ill.(3) R2 .....4.05
Tonawanda(3,4) B12 ..5.00
Williamsport(3) S19 ...5.25
Williamsport,Pa. S19 ...5.35

BARS, Wrought Iron (Add 4.7% to base and extras)
Economy,Pa.(S.R.) B14.9.60
Economy,Pa.(D.R.)B14 11.90
Economy(Staybolt) B14 12.20
McK.Rks.(Staybolt) L5.14.50
McK.Rks.(S.R.) L5 ...9.60
McK.Rks.(D.R.) L5 ..13.00

SHEETS, Hot-Rolled Steel (18 gage and heavier)
AlabamaCity,Ala. R2 ..3.775
Ashland,Ky.(8)A10 ...3.775
Butler,Pa. A10 .....3.775
Cleveland J5, R2 ....3.775
Conshohocken,Pa. A3 ..4.175
Detroit M1 .....4.40
Ecorse,Mich. G5 .....3.975
Fairfield,Ala. T2 .....3.775
Fontana,Calif. K1 ....4.825
Gary,Ind. U5 .....3.775
Geneva,Utah C11 .....3.875
GraniteCity,Ill. G4 .....4.30
Ind.Harbor,Ind. I-2, Y1 3.775
Irvin,Pa. U5 .....3.775
Lackawanna,N.Y. B2 ..3.775
Munhall, Pa. U5 .....3.775
Niles,O. N12 .....5.425
Pittsburg,Calif. C11 ..4.475
Pittsburgh J5 .....3.775
Sharon,Pa. S3 .....4.175
So.Chicago,Ill. W14 ...3.775
SparrowsPoint,Md. B2.3.775
Steubenville,O. W10 ..3.775
Torrance,Calif. C11 ...4.475
Warren,O. R2 .....3.775
Weirton,W.Va. W6 ....3.775
WestLeechburg,Pa. A4.3.925
Youngstown U5, Y1 ..3.775

SHEETS, H.R. (19 gage)
AlabamaCity,Ala. R2 ..4.925
Dover,O. R1 .....5.825
Mansfield,O. E6 .....5.65
Niles,O. N12 .....5.675
Torrance,Calif. C11 ...5.575

SHEETS, Cold-Rolled High-Strength Low-Alloy
Cleveland J5, R2 ....6.925
Ecorse,Mich. G5 .....7.475
Fontana,Calif. K1 ....7.975
Gary,Ind. U5 .....6.925
IndianaHarbor,Ind. Y1 .7.425
IndianaHarbor,Ind. I-2.6.925
Irvin,Pa. U5 .....6.925
Lackawanna(37) B2 ..6.925
Pittsburgh J5 .....6.925
SparrowsPoint(38) B2..6.925
Warren,O. R2 .....6.925
Weirton,W.Va. W6 ....7.275
Youngstown Y1 .....7.425

SHEETS, H.R. (14 ga. heavier) High-Strength Low-Alloy
Cleveland J5, R2 ....5.675
Conshohocken,Pa. A3 ..5.925
Ecorse,Mich. G5 .....6.225
Fairfield,Ala. T2 .....5.675
Fontana,Calif. K1 ....6.775
Gary,Ind. U5 .....5.675
Ind.Harbor,Ind. I-2 ...5.675
Ind.Harbor,Ind. Y1 ...6.175
Irvin,Pa. U5 .....5.675
Lackawanna(35) B2 ..5.675
Munhall U5 .....5.675
Pittsburgh J5 .....5.675
Sharon,Pa. S3 .....5.675
So.Chicago,Ill. U5 ....5.675
SparrowsPoint(36) B2..5.675
Warren,O. R2 .....5.675
Weirton,W.Va. W6 ....6.025
Youngstown U5 .....5.675
Youngstown Y1 .....6.175

SHEETS, Cold-Rolled Steel (Commercial Quality)
Butler,Pa. A10 .....4.575
Cleveland J5, R2 .....4.575
Ecorse,Mich. G5 .....4.775
Fairfield,Ala. T2 .....4.575
Follansbee,W.Va. F4 ..5.575
Fontana,Calif. K1 ....5.675
Gary,Ind. U5 .....4.575
GraniteCity,Ill. G4 ....5.275
Ind.Harbor,Ind. I-2,Y1.4.575
Irvin,Pa. U5 .....4.575
Lackawanna,N.Y. B2 ..4.575
Middletown,O. A10 ....4.575
Pittsburg,Calif. C11 ...5.525
Pittsburgh J5 .....4.575
SparrowsPoint,Md. B2..4.575
Steubenville,O. W10 ...4.575
Warren,O. R2 .....4.575
Weirton,W.Va. W6 ....4.575
West Leechburg,Pa. A4..5.45
Youngstown Y1 .....4.575

SHEETS, Galv'd No. 10 Steel
AlabamaCity,Ala. R2 ..5.075
Ashland,Ky.(8) A10 ..5.075
Canton,O. R2 .....5.075
Delphos,O. N16 .....5.675
Dover,O. R1 .....5.775
Fairfield,Ala. T2 .....5.075
Gary,Ind. U5 .....5.075
GraniteCity,Ill. G4 ....5.275
Ind.Harbor,Ind. I-2 ...5.075
Irvin,Pa. U5 .....5.075
Kokomo,Ind.(13) C16 ..5.475
MartinsFerry,O. W10 ..5.075
Niles,O. N12 .....6.275
Pittsburg,Calif. C11 ...5.825
SparrowsPoint,Md. B2 .5.075
Steubenville,O. W10....5.075
Torrance,Calif. C11 ...5.825
Weirton,W.Va. W6 ....5.075

SHEETS, Galvanized No. 10, High-Strength Low-Alloy
Irvin,Pa. U5 .....7.625
SparrowsPoint(39) B2..7.775

SHEETS, Galvannealed Steel
Canton,O. R2 .....5.625
Irvin,Pa. U5 .....5.625
Kokomo,Ind.(13) C16 ..6.025
Niles,O. N12 .....6.825

SHEETS ZINCGRIP STEEL No. 10
Butler,Pa. A10 .....5.325
Middletown,O. A10 ...5.325

SHEETS, Electro Galvanized
Cleveland R2 (28) 5.925
Niles,O. R2 (28) 5.925
Weirton,W.Va. W6 ....5.775

SHEETS, Weil Casing
Fontana,Calif. K1 .....5.34

BLUED Stock, 29 ga.
Yorkville,O. W10 .....7.00
Follansbee,W.Va. F4 ...7.10
Follansbee (23) F4 ....6.425

SHEETS, Enameling Iron
Ashland,Ky.(8) A10 ..4.925
Cleveland R2 .....4.925
Gary,Ind. U5 .....4.925
GraniteCity,Ill. G4 ....5.625
Ind.Harbor,Ind. I-2 ...4.925
Irvin,Pa. U5 .....4.925
Middletown,O. A10 ....4.925
Youngstown Y1 .....4.925

BLACK PLATE (Base Box)
Aliquippa,Pa. J5 .....$6.50
Fairfield,Ala. T2 .....6.60
Gary,Ind. U5 .....6.50
GraniteCity,Ill. G4 .....6.70
Ind.Harbor,Ind. I-2, Y1.6.50
Irvin,Pa. U5 .....6.50
Niles,O. R2 .....6.50
Pittsburg,Calif. C11 ....7.25
SparrowsPoint,Md. B2 ..6.60
Warren,O. R2 .....6.50
Weirton,W.Va. W6 ....6.50
Yorkville,O. W10 .....6.50

HOLLOWARE ENAMELING Black Plate (29 gage)
Follansbee,W.Va. F4 ...6.10
Gary,Ind. U5 .....6.10
GraniteCity,Ill. G4 .....6.30
Ind.Harbor,Ind. Y1 ....6.10
Irvin,Pa. U5 .....6.10
Yorkville,O. W10 .....6.35

SHEETS, Culvert No. 16	Cu Alloy	Cu Fe
Ashland,Ky. A10	5.875	....
Canton,O. R2 ..	5.925	6.375
Fairfield,Ala. T2	5.875	6.125
Gary,Ind. U5 ...	5.875	6.125
Ind.Harbor I-2 .	5.875	6.125
Irvin,Pa. U5 ...	5.875	6.125
Kokomo,Ind. C16	6.525	....
MartinsFy.,O.W10	5.875	....
Pittsburg,Cal.C11	6.625	....
SparrowsPt. B2 .	5.875	....
Torrance,Cal.C11	6.625	....

SHEETS, Culvert, No. 16 Pure Iron
Ashland,Ky. A10 .....6.125
Fairfield,Ala. T2 .....6.125
MartinsFerry,O. W10 ..6.125

SHEETS, Hot-Rolled Ingot Iron 18 Gage and Heavier
Ashland,Ky.(8) A10 ..4.025
Cleveland R2 .....4.375
Ind.Harbor,Ind. I-2 ...4.025
Warren,O. R2 .....4.375

SHEETS, Cold-Rolled Ingot Iron
Butler,Pa. A10 .....5.075
Cleveland R2 .....5.175
Middletown,O. A10 ....5.075
Warren,O. R2 .....5.175

SHEETS, Galvanized Ingot Iron No. 10 flat
Ashland,Ky.(8) A10 ...5.325
Canton,O. R2 .....5.825

SHEETS, ZINCGRIP Ingot Iron
Butler,Pa. A10 .....5.575
Middletown,O. A10 ....5.575

SHEETS, ALUMINIZED
Butler,Pa. A10 .....8.425

SHEETS, Long Terne, Ingot Iron
Middletown,O. A10 ....5.875

MANUFACTURING TERNES (Special Coated)
Fairfield,Ala. T2 .....$7.85
Gary,Ind. U5 .....7.75
Irvin,Pa. U5 .....7.75
Yorkville,O. W10 .....7.75

SHEETS, LT. Coated Ternes, 6 lb
Yorkville,O. W10 .....$8.65

SHEETS, Mfg. Ternes, 8 lb (Commercial Quality)
Gary,Ind. U5 .....$9.75
Yorkville,O. W10 .....9.75

SHEETS, Long Terne Steel (Commercial Quality)
BeechBottom,W.Va.W10 5.475
Gary,Ind. U5 .....5.475
Mansfield,O. E6 .....6.05
Middletown,O. A10 ....5.475
Niles,O. N12 .....6.275
Weirton,W.Va. W6 ....5.475

ROOFING SHORT TERNES (8 lb Coated)
Gary,Ind. U5 .....9.75

TIN PLATE, American Coke (Base Box)	1.25 lb	1.50 lb
Aliquippa,Pa. J5	$8.70	$8.95
Fairfield,Ala. T2	8.80	9.05
Gary,Ind. U5	8.70	8.95
Ind.Har. I-2, Y1.	8.70	8.95
Irvin,Pa. U5	8.70	8.95
Pitts.,Cal. C11 ..	9.45	9.70
Sp.Pt.,Md. B2 ..	8.80	9.05
Warren,O. R2 ..	8.70	...
Weirton,W.Va.W6	8.70	8.95
Yorkville,O. W10.	8.70	8.95

STRIP, Hot-Rolled High-Strength Low-Alloy
Bessemer,Ala. T2 .....5.65
Conshohocken,Pa. A3...5.90
Ecorse,Mich. G5 .....6.30
Fairfield,Ala. T2 .....5.65
Fontana,Calif. K1 .....6.75
Gary,Ind. U5 .....5.65
Ind.Harb.,Ind. I-2 ....5.65
Ind.Harbor,Ind. Y1 ....6.15
Lackawanna,N.Y. B2 ..5.70
LosAngeles(25) B3 ....6.40
Seattle(25) B3 .....6.65
Sharon,Pa. S3 .....5.65
So.SanFrancisco(25) B3.6.40
SparrowsPoint,Md. B2..5.70
Warren,O. R2 .....5.65
Weirton,W.Va. W6 ....6.10
Youngstown Y1 .....6.15
Youngstown U5 .....5.65

STRIP, Cold-Rolled High-Strength Low-Alloy
Cleveland J5 .....7.45
Cleveland A7 .....7.30
Dover,O. G6 .....8.00
Ecorse,Mich. G5 .....8.15
Lackawanna,N.Y. B2 ..7.90
Sharon,Pa. S3 .....7.30
SparrowsPoint,Md. B2 .7.90
Warren,O. R2 .....7.30
Weirton,W.Va. W6 ....7.95
Youngstown Y1 .....7.80

STRIP, Cold-Rolled Alloy Steel
Bridgeprt,Conn.(10)S15 12.15
Carnegie,Pa. S18 .....12.00
Cleveland A7 .....11.40
Dover,O. G6 .....11.90
Fontana,Calif. K1 ....13.30
Harrison,N.J. C18 ....12.00
Midland,Pa. C18 .....12.00
NewBritn,Conn.(10)S15 12.15
Pawtucket,R.I.(11) N8 12.15
Pawtucket,R.I.(12) N8.12.45
Sharon,Pa. S3 .....12.00
Worcester,Mass. A7 ...11.70
Youngstown C8 .....12.00

STRIP, Hot-Rolled Ingot Iron
Ashland,Ky.(8) A10 ..3.975
Warren,O. R2 .....4.325

STRIP, Cold-Rolled Ingot Iron
Warren,O. R2 .....5.70

TIN PLATE, Electrolytic (Base Box)	0.25 lb	0.50 lb	0.75 lb
Aliquippa,Pa. J5	$7.40	$7.65	$8.05
Fairfield,Ala. T2	7.50	7.75	8.15
Gary,Ind. U5	7.40	7.65	8.05
GraniteCity,Ill. G4	7.60	7.85	8.25
IndianaHarbor,Ind. I-2, Y1	7.40	7.65	8.05
Irvin,Pa. U5	7.40	7.65	8.05
Niles,O. R2	7.40	...	...
Pittsburg,Calif. C11	8.15	8.40	8.80
SparrowsPoint,Md. B2	7.50	7.75	8.15
Weirton,W.Va. W6	7.40	7.65	8.05
Yorkville,O. W10	7.40	7.65	8.05

SHEETS, SILICON, H.R. or C.R.(22 Ga.) COILS (Cut lengths ½c lower)	Field	Arma-ture	Elec-tric	Dyna-Motor	mo
BeechBottom W10 (cut lengths)	...	...	7.85	9.10	9.90
BrackenridgePa. A4	...	...	8.35	9.60	10.40
GraniteCity,Ill. G4 (cut lengths)	...	...	8.55	9.80	...
IndianaHarbor,,Ind. I-2	7.55	7.85	(34)	(41)	...
Mansfield,O. E6 (cut lengths)	7.20	7.35	7.85	9.10	9.90
Niles,O. N12 (cut lengths) ..	7.05	7.35	7.85	...	...
Vandergrift,Pa. U5	...	7.85	8.35	9.60	10.40
Warren,O. R2	7.55	7.85	8.35	9.60	10.40
Zanesville,O. A10	...	7.85	8.35	9.60	10.40

SHEETS, SILICON (22 Ga. Base) COILS (Cut Lengths ½c lower) Transformer Grade	72	65	58	52
BeechBottom W10 (cut lengths)	10.45	11.00	11.70	12.50
Brackenridge,Pa. A4	10.95	....	....	....
Vandergrift,Pa. U5	10.95	11.50	12.20	13.00
Warren,O. R2	10.95	....	....	....
Zanesville,O. A10	10.95	11.50	12.20	13.00

H.R. or C.R. COILS AND CUT LENGTHS, SILICON (22Ga.)	T-100	T-90	T-80	T-73
Butler,Pa. A10 (C.R.)	....	....	15.35	15.85
Vandergrift,Pa. U5	13.50	14.35	15.35	15.85

STRIP, Cold-Finished, Spring Steel (Annealed)	0.26-0.40C	0.41-0.60C	0.61-0.80C	0.81-1.05C	1.06-1.35C
Berea,O. C7	...	6.80	7.40	9.35	11.65
Bridgeport,Conn.(10) S15	5.80	7.65	8.25	10.20	12.50
Bristol,Conn. W1	...	...	8.55	10.50	....
Carnegie,Pa. S18	...	7.65	8.25	10.30	12.50
Cleveland A7	5.10	7.30	8.25	10.20	12.50
Dearborn,Mich. D3	6.05	7.90	8.50	....	....
Detroit D2	6.45	7.50	8.10	....	....
Dover,O. G6	5.70	7.65	8.25	10.20	12.50
FranklinPark,Ill. T6	5.45	7.45	8.40	10.35	12.65
Harrison,N.J. C18	...	...	8.55	10.50	12.80
Mattapan,Mass. T6	5.95	7.60	8.55	10.50	12.80
NewBritn.,Conn.(10) S15	5.80	7.65	8.25	10.20	12.50
NewCastle,Pa. B4	5.80	7.65	8.25	10.20	....
NewCastle,Pa. E5	5.80	7.65	8.25	10.20	12.50
NewHaven,Conn. D2	6.70	7.60	8.20	....	....
NewYork W3	...	7.95	8.55	10.50	12.80
Pawtucket,R.I. N8:					
Cleve.orPitts.Base	...	...	7.65	8.25	10.20	12.50
Worcester,Mass.,Base.	6.30	7.95	8.55	10.50	12.80
Sharon,Pa. S3	5.80	7.65	8.25	10.20	12.50
Trenton,N.J. R5	...	7.95	8.55	10.50	12.80
Wallingford,Conn. W2..	6.30	7.60	8.20	10.15	12.65
Warren,O. T5	6.20	7.65	8.25	10.20	12.50
Weirton,W.Va. W6	5.80	7.65	8.25	10.20	12.50
Worcester,Mass. A7	5.40	7.60	8.55	10.50	12.80
Worcester,Mass. T6	5.95	7.60	8.55	10.50	12.80
Youngstown C8	...	7.65	8.25	10.20	12.50
Spring Steel (Tempered)					
Trenton,N.J. R5 (29)	...	...	10.30	12.50	15.35
Harrison,N.J. C18	..	...	10.30	12.50	15.35
NewYork W3	...	...	10.30*	12.50*	15.35*
Youngstown C8	...	...	10.30	12.50	15.35

* Plus 1.575 per 100 lb.

Key to Producers

M1 McLouth Steel Corp.
M4 Mahoning Valley Steel
M5 Medart Co.
M6 Mercer Tube & Mfg. Co.
M8 Mid-States Steel & Wire
M12 Moltrup Steel Products
M13 Monarch Steel Co.
N2 National Supply Co.
N3 National Tube Div.
N5 Nelsen Steel & Wire Co.
N6 NewEng.-HighCarb.Wire
N8 Newman-Crosby Steel
N12 Niles Rolling Mill Div.
N14 Nrthwst. Steel Roll. Mills
N15 Northwestern S.&W. Co.
N16 New Delphos Mfg. Co.
O3 Oliver Iron & Steel Corp.
O4 Oregon Steel Mills
P1 Pacific States Steel Corp.
P2 Pacific Tube Co.
P4 Phoenix Iron & Steel Co.
P5 Pilgrim Drawn Steel
P6 Pittsburgh Coke & Chem.
P7 Pittsburgh Steel Co.
P9 Pittsburgh Tube Co.
P11 Pollak Steel Co.
P12 Portsmouth Division, Detroit Steel Corp.
P13 Precision Drawn Steel
P14 Pitts. Screw & Bolt Co.
P15 Pittsburgh Metallurgical
P16 Page Steel & Wire Div., Amer. Chain & Cable
P17 Plymouth Steel Co.
R1 Reeves Steel & Mfg. Co.
R2 Republic Steel Corp.
R3 Rhode Island Steel Corp.
R5 Roebling's Sons, John A.
R6 Rome Strip Steel Co.
R7 Rotary Electric Steel Co.
R8 Reliance Div., Eaton Mfg.
S1 Seneca Wire & Mfg. Co.
S3 Sharon Steel Corp.
S4 Sharon Tube Co.
S5 Sheffield Steel Corp.
S6 Shenango Furnace Co.
S7 Simmons Co.
S8 Simonds Saw & Steel Co.
S9 Sloss-Sheffield S.&.I. Div.
S13 Standard Forgings Corp.
S14 Standard Tube Co.
S15 Stanley Works
S16 Struthers Iron & Steel
S17 Superior Drawn Steel Co.
S18 Superior Steel Corp.
S19 Sweet's Steel Co.
S20 Southern States Steel
S24 Seidelhuber Steel
T2 Tenn. Coal & Iron Div.
T3 Tenn. Prod. & Chem.
T4 Texas Steel Co.
T5 Thomas Strip Division, Pittsburgh Steel Co.
T6 Thompson Wire Co.
T7 Timken Roller Bearing
T9 Tonawanda Iron Div., Am. Rad. & Stan. San.
U4 Universal Cyclops Steel
U5 United States Steel Corp.
V2 Vanadium-Alloys Steel
V3 Vulcan Crucible Steel Co.
W1 Wallace Barnes Co.
W2 Wallingford Steel Co.
W3 Washburn Wire Co.
W4 Washington Steel Corp.
W6 Weirton Steel Co.
W7 W. Va. Steel & Mfg. Co.
W8 West.Auto.Mach.Screw
W9 Wheatland Tube Co.
W10 Wheeling Steel Corp.
W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron
W13 Wilson Steel & Wire Co.
W14 Wisconsin Steel Div. International Harvester
W15 Woodward Iron Co.
W18 Wyckoff Steel Co.
Y1 Youngstown Sheet&Tube

STRIP, Hot-Rolled Carbon

Ala.City,Ala.(27) R2...3.725
Alton,Ill. L1 .....4.20
Ashland,Ky(8) A10 ..3.725
Atlanta A11 .....4.275
Bessemer,Ala. T2 ....3.725
Bridgeport,Con.(10)S15 4.225
Buffalo(27) R2 .....3.725
Butler,Pa. A10 .....3.725
Carnegie,Pa. S18 ....4.225
Conshohocken,Pa. A3 ..4.125
Detroit M1 .....4.40
Ecorse,Mich. G5 ....4.025
Fairfield,Ala. T2 ....3.725
Fontana,Calif. K1 ....5.175
Gary,Ind. U5 .....3.725
Houston,Tex. S5 .....4.125
Ind.Harbor,Ind. I-2,Y1.3.725
Johnstown,Pa.(25) B2..3.725
KansasCity,Mo.(9) S5..4.325
Lackw'na,N.Y.(32) B2 3.725
LosAngeles(25) B3 ....4.475
Milton,Pa. B6 .....4.35
Minnequa,Colo. C10 ...4.775
NewBritain(10) S15 ...4.225
N.Tonawanda,N.Y.B11 3.725
Pittsburg,Calf. C11 ...4.475
Riverdale,Ill. A1 .....3.725
SanFrancisco S7 .....5.00
Seattle(25) B3 .....4.725
Seattle N14 .....4.75
Sharon,Pa. S3 .....4.225
So.Chicago, Ill. W14 ...3.725
So.SanFrancisco(25) B3 4.475
SparrowsPoint,Md. B2.3.725
Sterling,Ill. N15 .....4.725
Torrance,Calif. C11 ...4.475
Warren,O. R2 .....3.725
Weirton,W.Va. W6 ....3.825
WestLeechburg,Pa. A4.3.975
Youngstown U5, Y1 ...3.725

STRIP, Hot-Rolled Alloy

Bridgeprt,Conn.(10) S15.6.05
Carnegie,Pa. S18 ....6.45
Fontana,Calif. K1 ....7.50
Gary, Ind. U5 .....6.10
Houston,Tex. S5 .....6.50
KansasCity, Mo. S5 ....6.70
Midland,Pa. C18 .....5.85
NewBritn.,Conn.(10)S15 6.05
Sharon,Pa. S3 .....6.45
Youngstown U5 .....6.10

STRIP, Cold-Rolled Carbon

Anderson,Ind.(40) G6 ..5.50
Bridgeprt,Conn.(10) S15.5.80
Butler,Pa. A10 .....5.10
Cleveland A7, J5 .....5.10
Dearborn,Mich. D3 .....6.05
Detroit D2 .....5.60
Detroit M1 .....5.45
Dover,O.(40) G6 .....5.50
Ecorse,Mich. G5 .....5.30
Follansbee,W.Va. F4 ...5.10
Fontana,Calif. K1 .....7.00
FranklinPark,Ill.(40)T6 .5.35
Ind.Harbor,Ind. I-2 ....5.35
Lackawanna,N.Y. B2 ..5.10
LosAngeles C1 .....7.15
Mattapan,Mass. T6 ....5.95
Middletown,O. A10 ....5.10
NewBritain(10) S15 ....5.80
NewCastle,Pa. B4 .....5.80
NewCastle,Pa.(40) E5 ..5.70
NewHaven,Conn. D2 ...5.85
NewHaven,Conn. A7 ...5.60
Pawtucket,R.I. R3 ....6.45
Pawtucket,R.I.(21) N8.6.30
Riverdale,Ill.(40) A1 ...5.35
Rome,N.Y. R6 .....5.10
Sharon,Pa. S3 .....5.80
SparrowsPoint,Md. B2 .5.10
Trenton,N.J. R5 .....6.45
Wallingford.Conn. W2 ..6.30
Warren,O.(40) T5 .....5.70
Warren,O. R2 .....5.10
Weirton,W.Va. W6 .....5.10
Youngstown C8 (40) ...5.70
Youngstown Y1 .....5.10

STRIP, Electro Galvanized

Dover, O. G6 .....5.50
Warren,O. T5 .....5.70
Weirton,W.Va. W6 ...5.10
Youngstown C8 .....5.70

TIGHT COOPERAGE HOOP

Atlanta A11 .....4.45
Riverdale,Ill. A1 .....4.30
Sharon,Pa. S3 .....4.55
Youngstown U5 .....4.15

ROPE WIRE

Alton,Ill. L1 (43) 8.75
Bartonville,Ill. K4 .....8.95
Buffalo W12 (43) 8.55
Fostoria,O. S1 (43) 8.85
Johnstown,Pa. B2 (43).8.55
Monessen,Pa. P16 (43)..8.55
Monessen,Pa. P7 (43) ..8.80
Muncie,Ind. I-7 (43) ...8.75
Palmer,Mass. W12 (43).8.85
Portsmouth,O. P12 (43).8.55
Roebling,N.J. R5 (43) ..8.85
SparrowsPt. B2 (43) ...8.65
Struthers,O. Y1 (43) ...8.55
Worcester J4, T6 (43) ..8.85

(A) Plow and Mild Plow; add 0.25c for improved plow.

WIRE, Merchant Quality

(6 to 8 gage)	An'ld. Galv.
AlabamaCity R2	6.075 6.325
Aliquippa J5	6.075 6.525‡
Atlanta A11	6.325 6.675
Bartonville(19)K4	6.075 6.40
Buffalo W12	5.225 ....
Cleveland A7	6.075 6.225
CrawfordsvilleM8	6.175 6.475
Donora,Pa. A7	6.075 6.225
Duluth,Minn. A7.	6.075 6.225
Fairfield T2	6.075 6.225
Houston,Tex. S5.	6.475 6.80
Johnstown B2	6.075 6.45†
Joliet,Ill. A7	6.075 6.225
KansasCy.Mo. S5	6.675 7.00
Kokomo C16	6.175 6.425
LosAngeles B3	7.025 ....
Minnequa C10	6.325 6.70*
Monessen P7	6.075 6.45
Palmer W12	5.525 ....
Pitts.,Calif. C11.	7.025 7.175
Prtsmth.(18)P12.	6.475 ....
Rankin A7	6.075 6.225
So.Chicago R2	6.075 6.325
So.S.Fran. C10	7.025 7.40*
SparrowsPt. B2	6.175 6.55†
Sterling,Ill.(1)N15	6.075 6.375
Struthers,O. Y1	6.075 6.475
Torrance,Cal. C11	7.025 ....
Worcester A7	6.375 6.525

*Based on 14c zinc; †14.50c zinc; ‡17.5c zinc.

WIRE (16 gage) (Add 4.7% on base and extras)	Anl'd. Galv. Stone	Stone
Aliquippa J5	10.15	12.15
Bartonville(19)K4	10.25	12.00*
Cleveland A7	10.25	11.55
Crawfrdsville M8	10.73	12.51
Fostoria,O. S1	10.40	13.00
Johnstown B2	10.73	12.58§
Kokomo C16	10.625†	12.325§
Minnequa C10	10.40	12.425*
Palmer,Mass. W12	10.25	12.15
Pitts.,Cal. C11	10.60	11.90
SparrowsPt. B2	10.84	12.68§
Sterling(1) N15	10.73†	12.15†
Waukegan A7	10.25	11.55
Worcester A7		11.85

*Based on 14c zinc; §14.50c zinc. †Includes 4.7% increase.

WIRE, Manufacturers Bright, Low Carbon

AlabamaCity,Ala. R2..5.225
Aliquippa,Pa. J5 (42)...4.85
Atlanta A11 .....5.475
Alton, Ill. L1 .....5.45
Bartonville,Ill. K4 ....5.325
Buffalo W12 .....5.225
Chicago W13 .....5.475
Cleveland A7, C20 ....5.225
Crawfordsville,Ind. M8.5.325
Donora,Pa. A7 .....5.225
Duluth,Minn. A7 .....5.225
Fairfield,Ala. T2 .....5.225
Fostoria,O. (24) S1 ....5.725
Houston S5 .....5.625
Johnstown,Pa. B2 ....5.225
Joliet,Ill. A7 .....5.225
KansasCity,Mo. S5 ....5.825
Kokomo,Ind. C16 .....5.325
LosAngeles B3 .....6.175
Minnequa,Colo. C10 ...5.475
Monessen,Pa. P7 .....5.475
Newark 6-8 ga I-1 ....5.88
No.Tonawanda B11 ...5.225
Palmer,Mass. W12 ....5.525
Pittsburg,Calif. C11 ...6.175
Portsmouth,O. P12 ....5.625
Rankin,Pa. A7 .....5.225
So.Chicago, Ill. R2 ....5.225
So.SanFrancisco C10 ..6.175
SparrowsPoint,Md. B2..5.325
Sterling,Ill.(1) N15 ...5.225
Struthers,O. Y1 .....5.225
Torrance,Calif. C11 ....6.175
Waukegan,Ill. A7 .....5.225
Worcester,Mass. A7 ...5.525

WIRE, Cold-Rolled Flat

Anderson,Ind. G6 .....6.20
Buffalo W12 (43) 6.35
Cleveland A7 (43) 5.85
Crawfs-ville,Ind.M8(43) 5.70
Dover,O. G6 .....6.20
Fostoria,O. S1 (43) 6.00
Kokomo,Ind. C16 (43)..5.70
FranklinPark,Ill. T6(43) 6.20
Massillon,O. R8 (43) ...5.85
Monessen,Pa. P16 (43)..6.35
Monessen,Pa. P7 (43) ..6.10
Pawtkt,R.I.(12) N8 (43)6.85
Trenton,N.J. R5 (43) ...6.15
Worcester,Mass.A7 (43).6.15
Worcester,Mass.T6 (43).6.50
Worcester,Mass.W12(43) 6.65

WIRE, Galv'd ACSR for Cores

Bartonville,Ill. K4 ....8.90
Monessen,Pa. P16 (43)..8.50
Muncie,Ind. I-7 (43) ...8.70
Roebling,N.J. R5 (43) ..8.80
SparrowsPt.,Md. B2(43).8.60
Johnstown,Pa. B2 (43)..8.50

WIRE, MB Spring, High Carbon

Aliquippa,Pa. J5 (43) ..6.25
Alton,Ill. L1 (43) 6.55
Bartonville,Ill. K4 .....6.64
Buffalo W12 (43) 6.25
Cleveland A7 (43) 6.25
Donora,Pa. A7 (43) 6.25
Duluth,Minn. A7 (43) ..6.25
Fostoria,O. S1 (43) 6.25
Johnstown,Pa. B2 (43)..6.25
Millbury(12) N6 (43)...8.05
Minnequa,Colo. C10(43).6.50
Monessen,Pa. P7 (43) ..6.25
Monessen,Pa. P16 .....6.75
Muncie,Ind. I-7 (43) ...6.45
Palmer,Mass. W12 (43) 6.55
Pittsburg,Calif. C11(43.7.20
Roebling,N.J. R5 (43)..6.55
Portsmouth,O. P12(43)..6.25
So.Chicago,Ill. R2 (43)..6.25
So.SanFran. C10 (43) ..7.20
SparrowsPt.,Md. B2 (43)6.35
Struthers,O. Y1 (43) ...6.25
Trenton,N.J. A7 (43) ..6.55
Waukegan,Ill. A7 (43)..6.25
Worcester A7, T6 (43)..6.55
Worcester,Mass. W12(43)6.55
Worcester,Mass. J4 (43).6.75

WIRE Upholstery Spring

Aliquippa,Pa. J5 .....6.275
Alton,Ill. L1 .....6.50
Buffalo W12 .....6.275
Cleveland A7 .....6.275
Donora,Pa. A7 .....6.275
Duluth,Minn. A7 .....6.275
Johnstown,Pa. B2 .....6.275
LosAngeles B3 .....7.225
Minnequa,Colo. C10 ...6.525
Monessen,Pa. P7 .....6.275
Monessen,Pa. P16(42) ..6.40
NewHaven,Conn. A7 ..6.575
Palmer,Mass. W12 ....6.575
Pittsburg,Calif. C11 ..7.225
Portsmouth,O. P12 ...6.275
Roebling,N.J. R5 .....6.575
So.Chicago,Ill. R2 ....6.275
So.SanFrancisco C10 ..7.225
SparrowsPoint,Md. B2..6.375
Torrance,Calif. C11 ..7.225
Trenton,N.J. A7 .....6.575
Waukegan,Ill. A7 .....6.275
Worcester,Mass. A7 ..6.575

WIRE, Fine & Weaving (8"Coils)

Alton,Ill. L1 (43) 9.20
Bartonville,Ill. K4 .....9.42
Buffalo W12 (43) 8.90
Chicago W13 .....9.32
Cleveland A7 (43) 8.90
Crawf'sville,Ind. M8(43) 8.90
Fostoria,O. S1 (43) 8.90
Johnstown,Pa. B2 (43)..8.90
Kokomo,Ind. C16 (43).8.90
Monessen,Pa. P16 (43)..8.90
Muncie,Ind. I-7 (43) ...9.10
Palmer,Mass. W12 (43)..9.20
Roebling,N.J. R5 (43) ..9.20
Waukegan.Ill. A7 (43)..8.90
Worcstr.Mass. A7,T6(43)9.20

WIRE, Tire Bead

Bartonville,Ill. K4 ....11.51
Monessen,Pa. P16 (43).11.40
Roebling,N.J. R5 (43).11.55

WOVEN FENCE, 9-15½ Ga. Col

AlabamaCity,Ala. R2 ...135
Ala.City,Ala.,17-18ga.R2 222
Aliqu'pa,Pa.9-14½ga.J5 139‡
Atlanta A11 140
Bartonville,Ill.(19) K4 ..137
Crawfordsville,Ind. M8 ..138
Donora,Pa. A7 133
Duluth,Minn. A7 133
Fairfield,Ala. T2 133
Houston,Tex. S5 145
Johnstown,Pa. B2 138
Johnstown 17ga.,6" B2 .229
Joliet,Ill. A7 133
KansasCity,Mo. S5 149
Kokomo,Ind. C16 140
Minnequa,Colo. C10 ....146*
Monessen,Pa. P7 138
Pittsburg,Calif. C11 156
Rankin,Pa. A7 133
So.Chicago,Ill. R2 135
Sterling,Ill. (1) N15 136

*On 14c zinc; ‡17.5c zinc.

FENCE POSTS	Col.
ChicagoHts.,Ill. C2	140
Duluth,Minn. A7	133
Franklin,Pa. F5	140
Huntington,W.Va. W7	148
Johnstown,Pa. B2	148
Marion,O. P11	140
Minnequa,Colo. C10	138
Moline,Ill. R2	136
So.Chicago,Ill. R2	140
Tonawanda,N.Y. B12	148
Williamsport,Pa. S19	158

WIRE, Barbed

	Col.
AlabamaCity,Ala. R2	144
Aliquippa,Pa. J5	148‡
Atlanta A11	149
Bartonville,Ill.(19) K4	146
Crawfordsville,Ind. M8	147
Donora,Pa. A7	142
Duluth,Minn. A7	142
Fairfield,Ala. T2	142
Houston,Tex. S5	154
Johnstown,Pa. B2	145
Joliet,Ill. A7	142
KansasCity,Mo. S5	158
Kokomo,Ind. C16	149
Minnequa,Colo. C10	153*
Monessen,Pa. P7	147
Pittsburg,Calif. C11	162
Rankin,Pa. A7	142
So.Chicago,Ill. R2	144
So.SanFran.,Calif. C10.	167*
SparrowsPoint,Md. B2	147
Sterling,Ill.(1) N15	145

*On 14c zinc; ‡17.5c zinc.

BALE TIES, Single Loop

	Col.
AlabamaCity,Ala. R2	132
Atlanta A11	135
Bartonville,Ill.(19) K4	132
Crawfordsville,Ind. M8	132
Donora,Pa. A7	132
Duluth,Minn. A7	132
Fairfield,Ala. T2	132
Joliet,Ill. A7	132
KansasCity,Mo. S5	144
Kokomo,Ind. C16	134
Minnequa,Colo. C10	137
Pittsburg,Calif. C11	156
So.Chicago,Ill. R2	132
So.SanFran.,Calif. C10	156
SparrowsPoint,Md. B2	134
Sterling,Ill.(1) N15	132

NAILS, Stock

To dealers & mfrs. (7)	Col.
AlabamaCity,Ala. R2	127
Aliquippa,Pa. J5	127
Atlanta A11	130
Bartonville,Ill. (19) K4.	127
Chicago,Ill. W13	127
Cleveland A9 (44)	125
Crawfordsville,Ind. M8	127
Donora,Pa. A7	127
Duluth,Minn. A7	127
Fairfield,Ala. T2	127
Galveston,Tex. D7	135
Houston,Tex. S5	135
Johnstown,Pa. B2	127
Joliet,Ill. A7	127
KansasCity,Mo. S5	139
Kokomo,Ind. C16	129
Minnequa,Colo. C10 (44)	123
Monessen,Pa. P7	127
Pittsburg,Calif. C11	146
Portsmouth,O. P12	132
Rankin,Pa. A7	127
So.Chicago,Ill. R2	127
SparrowsPt.Md. B2	129
Sterling,Ill.(1) N15	127
Torrance,Calif. C11	147
Worcester,Mass. A7	133

NAILS, Cut (100 lb keg) to dealers (33)

Conshohocken,Pa. A3 ..$7.80
Wheeling,W.Va. W10 ...7.80

RAILS

	Std. No. 1	Std. No. 2	All No. 2	Std. Tee Rails 60 lb Under
Bessemer,Pa. U5	3.775	3.675	3.725	4.25
Ensley,Ala. T2	3.775	3.675	....	4.25
Fairfield,Ala. T2	....	....	....	4.25
Gary,Ind. U5	3.775	3.675	3.725	....
Huntington,W.Va. W7	....	....	....	5.25
IndianaHarbor,Ind. I-2	*4.075*	*3.975*	*4.025*	....
Johnstown,Pa. B2	....	....	...(16)	4.25
Lackawanna,N.Y. B2	3.775	3.675	....	4.25
Minnequa,Colo. C10	$81.50*	$79.50*	....	4.75
Steelton,Pa. B2	3.775	3.675	....	....
Williamsport,Pa. S19	....	....	....	5.00

*Per net ton.

STAPLES, Polished, Stock

To dealers & mfrs. (7)	Col.
AlabamaCity,Ala. R2	126
Aliquippa,Pa. J5	126
Atlanta A11	129
Bartonville,Ill. (19) K4.	126
Chicago W13	127
Crawfordsville,Ind. M8	128
Donora,Pa. A7	126
Duluth,Minn. A7	126
Fairfield,Ala. T2	126
Johnstown,Pa. B2	126
Joliet,Ill. A7	126
Kokomo,Ind. C16	128
Minnequa,Colo. C10 (45)	123
Monessen,Pa. P7	127
Pittsburg,Calif. C11	145
Portsmouth,O. P12	132
Rankin,Pa. A7	126
So.Chicago,Ill. R2	126
SparrowsPt.,Md. B2	128
Sterling,Ill.(1) N15	126
Torrance,Calif. C11	146
Worcester,Mass. A7	132

TRACK BOLTS (20) Treated

KansasCity,Mo. S5(46)..9.85
Lebanon,Pa. (31) B2 ...9.85
Minnequa,Colo. C10 ....9.85
Pittsburgh P14 .....9.85
Pittsburgh O3 .....10.60

AXLES

Ind.Harbor,Ind. S13 ....5.65
Johnstown,Pa. B2 .....5.65

TIE PLATES

Fairfield,Ala. T2 .....4.775
Gary,Ind. U5 .....4.775
Ind.Harbor,Ind. I-2 ....4.925
Lackawanna,N.Y. B2 ..4.775
Minnequa,Colo. C10 ...4.925
Pittsburg,Calif. C11 ..4.925
Seattle B3 .....4.925
Steelton,Pa. B2 .....4.775
Torrance,Calif. C11 ...4.925

JOINT BARS

Bessemer,Pa. U5 .....4.925
Fairfield,Ala. T2 .....4.925
Ind.Harbor,Ind. I-2 ....5.075
Joliet,Ill. U5 .....4.925
Lackawanna,N.Y. B2..4.925
Minnequa,Colo. C10 ...5.075
Steelton,Pa. B2 .....4.925

STANDARD TRACK SPIKES

Ind.Harbor,Ind. I-2 .....6.80
Ind.Harbor,Ind. Y1 ....6.65
KansasCity, Mo. S5 ....6.90
Lebanon,Pa. B2 .....6.65
Minnequa,Colo. C10 ....6.80
Pittsburgh J5 .....6.65
Seattle B3 .....7.15
So.Chicago, Ill. R2 ....6.65
Struthers,O. Y1 .....6.65
Youngstown R2 .....6.65

TOOL STEEL

(Prices subject to 4.7% increase)

Grade	$ per lb
Regular Carbon	0.230
Extra Carbon	0.270
Special Carbon	0.325
Oil Hardening	0.350
5% Cr Hot Work	0.350
Hi-Carbon-Cr	0.635

Grade by Analysis

W	Cr	V	Co	
18	4	1	....	1.505
18	4	2	....	1.65-1.66
20.25	4.25	1.6	12.25	3.535-3.675
19	4	2	7	2.460
18.25	4.25	1	4.75	2.125
18	4	2	9	2.445-2.45
13.5	4	3	....	1.6025
9	3.25	0.5	....	1.01

W	Cr	V	Mo	
6.4	4.5	1.9	5	0.96-0.965
6	4	3	6	1.190
1.5	4	1	8.5	0.810

Tool steel producers include: A4, A8, B2, B8, C4, C9, C13, C18, D4, F2, J3, L3, M14, S8, U4, V2 and V3.

FOOTNOTES

(1) Chicago base.
(2) Angles, flats, bands.
(3) Merchant.
(4) Reinforcing.
(6) Chicago or Birm. base.
(7) To jobbers, 3 cols. lower.
(8) 16 gage and heavier.
(9) 6 in. and narrower.
(10) Pittsburgh base.
(11) Cleveland & Pitts. base.
(12) Worcester, Mass. base.
(13) Add 0.50c for 17 Ga. & heavier.
(15) ½" and thinner.
(16) 40 lb and under.
(17) Flats only.
(18) To dealers.
(19) Chicago & Pitts. base.
(20) 0.25c off for untreated.
(21) New Haven, Conn., base.
(22) Del. San Francisco Bay area.
(23) 20 Ga. 36" wide.
(24) Deduct 0.20¢, finer than 15 Ga.
(25) Bar mill bands.
(26) Reinforcing mill lengths, to fabricators; to consumers, 5.05c.
(27) Bar mill sizes.
(28) Bonderized.
(29) Add $31.50 per ton.
(30) Sheared; add 0.35c for universal mill.
(31) Not annealed.
(32) Rd. or square edge.
(33) To jobbers, deduct 20c.
(34) 7.85c for cut lengths.
(35) 72" and narrower.
(36) 54" and narrower.
(37) 15 gage & lighter: 60" & narrower.
(38) 14 gage & lighter: 48" & narrower.
(39) 48" and narrower.
(40) Lighter than 0.035"; 0.035" and heavier, 0.25c higher.
(41) 9.10c for cut lengths.
(42) Plus 0.375c per 100 lb.
(43) Plus 4.7% on base and extras.
(44) Plus 45c per 100 lb.
(45) Plus 40c per 100 lb.
(46) Plus 2.2 per cent.

BUTTWELD STANDARD PIPE, T & C

Carload discounts from list, %

Size—Inches	⅛		¼		⅜		½		¾		1		1¼		1½		2		2½		3	
List Per Ft.	8.5c		11.5c		17c		23c		27.5c		37c		58.5c		76.5c							
Pounds Per Ft.	0.85		1.13		1.68		2.28		2.73		3.68		5.82		7.62							
	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv
Aliquippa, Pa. J5 (‡)	32.5	15.25	35.5	18.25	38	20.75	38.5	20.5	39	21	39.5	21.5	40	21.25	40	21.25						
Alton, Ill. L1 (†)	29.5	10.5	32.5	14.5	35	18	35.5	18.5	36	19.5	36.5	20	37	20.5	37	20.5						
Benwood, W. Va. W10	32.5	13.25	35.5	17.25	38	20.75	38.5	20.5	39	21.5	39.5	22	40	21.75	40	21.75						
Etna, Pa. N2 (†)	32.5	13.25	35.5	17.25	38	20.75	38.5	20.5	39	22.25	39.5	22	40	21.75	40	21.75						
Fontana, Calif. K1 (†)	19.5	0.25	22.5	4.25	25	7.75	25.5	7.5	26	8.5	26.5	9	27	8.75	27	8.75						
Ind. Harbor, Ind. Y1 (†)	31.5	14.25	34.5	18.25	37	21.75	37.5	21	38	22	38.5	22.25	39	21.75	39	21.75						
Lorain, O. N3 (*)	32.5	22.25	35.5	26.25	38	29.75	38.5	27.25	39	28.25	39.5	28.75	40	26.25	40	26.25						
Sharon, Pa. M6	32.5	14.25	35.5	18.25	38	21.25	38.5	20.50	39	21.00	39.5	21.50	40	20.75	40	20.75						
Sparrows Pt., Md. B2	30.5	11.25	33.5	15.25	36	18.75	36.5	18.5	37	19.5	37.5	20	38	19.75	38	19.75						
Youngstown R2 (**)	32.5	16.25	35.5	20.25	38	23.75	38.5	22.75	39	23.75	39.5	24.25	40	23.25	40	23.25						
Youngstown Y1 (‡)	32.5	15.25	35.5	19.25	38	22.75	38.5	22.00	39	23.00	39.5	23.50	40	22.75	40	22.75						
Wheatland, Pa. W9	32.5	13.25	35.5	16.25	38	18.75	38.5	19	39	19.5	39.5	20	40	20.25	40	20.25						

SEAMLESS STANDARD PIPE, T & C

Carload discounts from list, %

Size—Inches	2		2½		3		3½		4		5		6	
List Per Ft	37c		58.5c		76.5c		92c		$1.09		$1.48		$1.92	
Pounds Per Ft	3.68		5.82		7.62		9.20		10.89		14.81		19.18	
	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv
Aliquippa, Pa. J5 (‡)	24	6	27	8.25	27	8.25	29	10.25	29	10.25	33.75	15	33.75	15
Ambridge, Pa. N2	24	6	27	8.25	27	8.25	29	10.25	29	10.25	33.75	15	33.75	15
Lorain, O. N3 (*)	24	12.75	27	12.75	27	12.75	29	14.75	29	14.75	33.75	19.5	33.75	19.5
Youngstown Y1 (‡)	24	7.50	27	9.25	27	9.25	29	11.25	29	11.25	33.75	16	33.75	16

ELECTRIC WELD STANDARD PIPE, T & C

Youngstown, R2 (**)	24	8.25	27	9.75	27	9.75	29	11.75	29	11.75	33.75	16.5	33.75	16.5

BUTTWELD STANDARD PIPE, T & C

Carload discounts from list, %

Size—Inches	⅛		¼		⅜		½		¾		1		1¼		1½		2	
List Per Ft	5.5c		6c		6c		92c		$1.09									
Pounds Per Ft	0.24		0.42		0.57		9.20		10.89									
	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv								
Benwood, W. Va. W10	29.5	+0.25	23.25	+3.5	17.75	+7.75	33	14.25	33	14.25								
Butler, Pa. F6 (†)	30.5	1.25	25	+1.75	20	+5.5	..	....	..	....								
Etna, Pa. N2 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25								
Sharon, Pa. M6 (‡)	29.5	−1.75	23	+2.25	18	+5.25	..	....	..	....								
Sharon, Pa. S4 (†)	30.5	1.25	25	+1.75	20	+5.5	..	....	..	....								
Sparrows Pt., Md. B2	28.5	+0.75	23	+3.75	18	+7.50	..	....	..	....								
Youngstown R2 (**)	....	....	....	....	....	....	33	15.75	33	15.75								
Wheatland, Pa. W9	28.5	+0.75	23	+3.75	18	+7.50	..	....	..	....								

Galvanized pipe discounts based on zinc price of: (†), 14c; (‡), 12.50c; (**), 11.50c; (*), 5c, with discounts adjusted depending on price of zinc at time of shipment.

BOILER TUBES

Net base c.l. prices, dollars per 100 ft, mill; minimum wall thickness, cut lengths 10 to 24 ft., inclusive.

O.D. In.	B.W. Gage	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.	Elec. Weld C.D.
1	13	14.19	16.71–17.77	16.20	16.20
1¼	13	16.97	19.80–21.26	16.46	19.19
1½	13	18.22–18.77	22.08–22.82	18.19	21.41
1¾	13	20.35–21.35	24.92–25.49	20.69	24.35
2	13	22.81–23.93	27.94–28.58	23.19	27.28
2¼	13	25.69–26.66	31.38–32.18	25.84	30.42
2½	12	28.40–29.36	34.55–35.58	28.46	33.50
2¾	12	31.28–32.17	37.83–39.19	31.19	36.67
3	12	33.87–34.82	40.09–42.44	33.05	38.86
3½	12	35.78–36.87	42.11–44.93	34.98	40.82

BOLTS, NUTS

CARRIAGE, MACHINE BOLTS

(F.o.b. midwestern plants; per cent off list for less than case lots to consumers)

6 in. and shorter:	
½-in. & smaller diam.	11
⅝-in. & ⅝-in.	15
¾-in. and larger	14
Longer than 6 in.:	
All diams.	8
Lag bolts, all diams.:	
6 in. and shorter	19
over 6 in. long	16
Ribbed Necked Carriage	15
Blank	30
Plow	30
Step, Elevator, Tap and Sleigh Shoe	18
Tire Bolts	8
Boiler & Fitting-Up Bolts	28

NUTS

	Reg.	Hvy.
H.P. & C.P. Square:		
½-in. & smaller	10	10
⅝-in. & ⅝-in.	8	1
¾-in.-1½-in.	4	+4
1⅝-in. & larger	22	1
H.P. Hex.:		
½-in. & smaller	12	+3
⅝-in. & ⅝-in.	8	+3
¾-in.-1½-in.	4	+3
1⅝-in. & larger	4	+3
C.P. Hex.:		
½-in. & smaller	22	18
⅝-in. & ⅝-in.	19	13
¾-in. & 1½-in.	15	8
1⅝-in. & larger	2	+4

SEMIFINISHED NUTS

American Standard

(Per cent off list for less than case or keg quantities)

	Reg.	Hvy.
½-in. & smaller	33	26
⅝-in. & ⅝-in.	27	19
¾-in.-1½-in.	21	11
1⅝-in. & larger	5	list
		Light
7/16-in. & smaller	33	
½-in. to ⅝-in.		26
¾-in. to 1½-in.		18

SQUARE HEAD SET SCREWS

(Packaged; per cent off list)

1 in. diam x 6 in. and shorter	37
1 in. and smaller diam. x over 6 in.	24

HEADLESS SET SCREWS

(Packaged; per cent off list)

No. 10 and smaller	34
¼-in. diam & larger	14
N.F. thread, all diams.	8

STEEL STOVE BOLTS

(F.o.b. plant, per cent off list in packages)

Plain finish	47.5 & 10
Plated finishes	30 & 10

HEXAGON CAP SCREWS

(1020 steel; packaged; per cent off list)

6 in. or shorter:	
⅝-in. & smaller	40
¾-in. through 1 in.	26
Longer than 6 in.:	
⅝-in. and smaller	24
¾-in. through 1 in.	2

RIVETS

F.o.b. Cleveland, and/or freight equalized with Pittsburgh; f.o.b. Chicago, and/or freight equalized with Birmingham except where equalization is too great.

Structural ½-in., larger 8.50c

7/16-in. under .....40 off

ELECTRODES

(Threaded, with nipples, unboxed f.o.b. plant)

GRAPHITE

Inches Diam.	Inches Length	Cents per lb
17,18,20	60,72	17.85
8 to 16	48,60,72	17.85
7	48,60	19.57
6	48,60	20.95

CARBON

35,40	110	8.03
30	65,84,110	8.03
24	72 to 104	8.03
17 to 20	34,90	8.03

METAL POWDERS

(Per pound, f.o.b. shipping point in ton lots for minus 100 mesh, except as otherwise noted)

	Cents
Sponge iron:	
98+ % Fe, annealed	18.00
Unannealed	14.50
Swedish, c.l.f. N.Y., c.l., in bags	10.90
Electrolytic iron:	
Annealed, 99.5% Fe.	42.50
Unannealed (99+ % Fe)	36.50
Unannealed (99+ % Fe) (minus 325 mesh)	53.50
Powder Flakes	48.50
Carbonyl Iron:	
97.9-99.8% size 5 to 10 microns	.83.00-148.00
Aluminum:	
Carlots, freight allowed	31.00
Atomized, 500 lb drums, freight allowed	34.00
Antimony, 500 lb lots.	78.00
Brass, 20-ton lots.	30.00-39.00
Bronze, 10-ton lots	.52.25-60.00
Copper:	
Electrolytic	45.75
Reduced	12.75*
Lead	7.50*
Magnesium	.75.00-85.00
Manganese:	
Minus 100 mesh	57.00
Minus 35 mesh	52.00
Minus 200 mesh	62.00
Nickel unannealed	89.50
Nickel-Silver 5-ton lots	48.50
Silicon	38.50
Solder	8.50*
Stainless Steel, 302	87.00
Zinc, 10-ton lots.	17.50-25.00
Tungsten	Dollars
Melting grade, 99% 60 to 200 mesh:	
1000 lb and over	5.35
Less than 1000 lb	5.50
Chromium, electrolytic 99.9% Cr min.	3.50

* Plus cost of metal.

STAINLESS STEEL

(Add 4.7% to extras where new extra cards have not been issued)

Type	Sheets	C.R. Strip	Bars Wire Structurals
301	44.25	36.50	33.75
302	44.50	39.75	34.00
303	46.50	43.50	36.50
304	46.50	41.75	35.50
309	60.50	59.25	48.25
316	61.50	63.50	53.00
321	53.00	52.00	40.00
347	58.00	56.50	44.75
410	39.00	32.75	27.50
416	40.00	40.00	28.00
420	47.00	50.25	33.50
430	41.50	33.25	28.00
501	29.25	27.75	15.25

Balt., Types 301-347 and 430 sheets, except 303 and 309 E2.

Brackenridge, Pa. sheets A4 quotes slight variations on Types 301-347.

Bridgeville, Pa., bars, wire, sheets & strip U4.

Butler, Pa. sheets and strip except Types 303, 309, 416 420, 501 & 502 A10

Carnegie, Pa., sheets and strip except Types 303, 416, 501 & 502 S18.

Cleveland, strip A7.

Detroit, strip M1 quotes 34.00c on Type 301; 36.50c 302; 38.50c, 304; 58.50c, 316; 52.00c, 347; 30.50c, 410; 31.00c, 430.

Dunkirk, N. Y., bars, wire A4 quotes slight variations on Types 301-347.

Duquesne, Pa., bars U5.

Fort Wayne, Ind., bars and wire, except 501 & 502 J6 quotes slight variations on Types 301-347.

Gary, Ind., sheets except Type 416 U5.

Harrison, N. J., strip and wire C18.

Harrison, N. J., wire, Type 302, 33.00c; Type 304, 34.50c; Type 316, 51.50c, including 4.7% increase.

Massillon, O., all items, R2.

McKeesport, Pa., strip, Type 410; bars & wire, Types 410 through 430 and 31.25c on Type 302, 33.75c on 303, 32.75c on 304, 48.75c on 316, 36.75c on 321, 41.25c on 347 F2.

McKeesport, Pa., bars, sheets except Type 416 U5.

Middletown, O., sheets and strip except Types 303, 416, 420, 501 and 502 A10.

Midland, sheets & strip C18.

Munhall, Pa., bars U5.

Muncie, Ind., wire I-7 quotes types 302, 304, 430.

Pittsburgh, sheets C18.

Reading, Pa., strip except 34.25c on Type 301 and 56.00c on 309; bars, except 31.50c on Type 301 and 45.25c on 309 C4.

Sharon, Pa., strip except Types 303, 309, 416, 501 502 and 34.25c on Type 301 S3.

So. Chicago, bars, shapes U5.

Syracuse, N. Y., bars, wire & structurals C18.

Titusville, Pa., bars U4.

Wallingford, Conn., strip W2 quotes 0.25c higher.

Washington, Pa., bars, sheets & strip J3.

Washington, Pa., Types 301 through 347 sheets & strip except 303, 309; 316 sheets 62.00c, strip 64.00c W4.

Watervliet, N. Y., structurals & bars A4.

Waukegan, bars & wire A7.

West Leechburg, strip A4.

Youngstown, strip C8.

CLAD STEELS

(Cents per pound; add 4.7% to base price and extras)

Cladding Stainless	Plates Carbon Base 10%	Plates Carbon Base 20%	Sheets Carbon Base 10%	Sheets Carbon Base 20%	Sheets Copper Base Both Sides
302	....	....	19.75	26.24-27.50	77.00
304	25.00	29.50	24.50	27.50-27.77	77.00
309	30.50	35.00	....	....	....
310	36.50	41.00	....	....	144.00
316	29.50	34.00	26.00	35.92-36.50	....
317	34.50	39.00	....	....	....
318	33.50	38.00	....	....	....
321	26.50	31.00-32.00	23.00	33.00	111.00
347	27.50	32.00	24.00	33.50-33.83	130.00
405	21.25	27.75	....	....	....
410	20.75	27.25	....	....	....
Nickel	33.55	45.15	....	....	....
Inconel	41.23	54.18	....	....	165.00
Monel	34.93	46.28	....	....	....
Copper*	....	....	....	44.00	....

	Strip Carbon Base Cold-Rolled 10%	Strip Carbon Base Cold-Rolled Both Sides	Strip Carbon Base Hot-Rolled 10%	Strip Carbon Base Hot-Rolled Both Sides
Nickel	41.00	54.00	....	....
Copper*	23.70	26.65	20.20	26.40

* Deoxidized. Production points: Stainless plates, sheets, Conshohocken, Pa. A3 and New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. C22, Coatesville, Pa. L7 and Washington, Pa. J3; nickel, inconel, monel-clad plates, Coatsville L7; nickel. copper-clad strip. Carnegie, Pa. S18 Production point for copper-base sheets is Carnegie, Pa. A13.

WAREHOUSE STEEL PRODUCTS

(Representative prices, cents per pound, subject to extras, f.o.b. warehouse. City delivery charges are 20 cents per 100 lb except: New York, 30 cents; Philadelphia, 25 cents; Birmingham, Cincinnati, San Francisco, St. Paul, 15 cents.)

	SHEETS			STRIP		BARS			Standard Structural Shapes	PLATES	
	H.R. 18 Ga., Heavier*	C.R.	Gal. 10 Ga.†	H.R.*	C.R.*	H.R. Rds.	C.F. Rds.‡	H.R. Alloy 4140††[5]		Carbon	Floor
Baltimore	5.81	7.17	7.38	6.42	...	6.41	7.68	11.27	6.47	6.47	7.70
Boston	6.51	7.35	8.39	6.55	...	6.57	7.89	11.18	6.56	6.75	7.98
Buffalo	5.80	6.65	8.31	6.21	...	6.05	7.35	11.07	6.08	6.30	7.67
Birmingham	5.80	6.65	7.70[2]	5.80	...	5.80	7.85	...	5.95	6.10	7.15
Chicago	5.80	6.65	7.90	5.82	...	5.98	7.06	10.65	5.95	5.95	7.18
Cincinnati	6.18	6.77	8.26	6.19	...	6.48	7.57	11.17	6.52	6.52	7.67
Cleveland	5.80	6.65	7.54	6.00	...	5.89	6.91	10.79	6.28	6.12	7.51
Detroit	6.00	6.85	8.59	6.13	6.85	6.14	7.30	10.92	6.42	6.47	7.52
Houston	6.74	...	8.62	6.89	...	6.98	...	...	6.82	6.78	8.16
JerseyCity,N.J.	6.26	7.27	8.32	6.56	...	6.59	7.53	9.54	6.39	6.60	8.01
Los Angeles	6.60	8.45	8.45	6.75	11.20	6.60	8.85	12.05	6.60	6.70	8.90
Milwaukee	5.97	6.82	8.07	6.00	...	6.15	7.33	10.82	6.12	6.12	7.35
Moline, Ill.	6.16	7.00	8.25	6.19	...	6.18	7.41	...	6.30	6.30	...
New York	6.26	7.27	8.32	6.56	...	6.74	7.90	11.04	6.39	6.60	8.01
Newark, N. J.	6.62	7.41	8.53	6.56	...	6.59	7.96	...	6.39	6.60	7.18
Norfolk, Va.	7.60	...	...	...	...	6.44	8.70	...	7.25	6.64	7.33
Philadelphia	6.11	7.13	7.70	6.45	8.30	6.57	7.66	10.79	6.17	6.24	7.37
Pittsburgh	5.80	6.65	7.90	5.94	...	5.83	6.91	10.65	5.95	5.95	7.18
Portland, Oreg.	7.80	9.05	9.30	7.50	...	7.25	9.65	...	7.25	7.05	9.25
Richmond, Va.	6.14	6.95	8.68	6.53	...	6.30	7.63	...	6.58	6.68	7.80
St. Louis	6.10	6.94	8.05	6.14	...	6.28	7.43	10.95	6.35	6.35	7.58
St. Paul	6.47	7.31	8.56	6.50	...	6.49	7.82	...	6.61	6.61	7.84
San Francisco	6.90	8.20	9.50	6.75	...	6.65	8.65	12.05	6.50	6.75	8.90
Seattle-Tacoma	7.16	8.24	9.20	7.20	...	7.08	9.62	11.70	6.63	7.04	8.90
Spokane (city)	7.80	9.40	9.80	7.15	...	7.10	9.70	11.90	7.00	7.10	9.15
Washington	6.31	7.61	8.90	6.89	...	6.90	8.03	...	6.93	6.95	8.17

Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage extra excluded); ‡ includes 25-cent special bar quality extra; § as rolled; †† as annealed. Base quantities, 2000 to 9999 lb except as noted. Cold-rolled strip, 2000 lb and over; cold-finished bars, 2000 lb and over; [2]—500 to 1499 lb; [5]—1000 to 1999 lb.

Distributors Increase Bar Quotations

Action on sheet and other products generally is delayed pending clarification of mill schedules. Over-all stocks decline as demand continues active for most products

Cleveland — Warehouse operators are adjusting their prices upward to compensate for increases in mill extras on the various products.

Some delay in announcing new warehouse lists is reported, however, due to the fact new extras were not issued simultaneously by the separate mills. In fact, some have yet to formally take action. For the most part, the increases will be passed along to customers. In some cases distributors may absorb part of the advances.

Demand on the warehouses continues strong, notably for sheets and strip. This is reflected in the first decline in warehouse stocks since last August. As of Apr. 1 over-all stocks held by 197 distributors were reported at 788,000 tons, comparing with 804,000 tons on Mar. 1, and with 654,000 tons on Apr. 1 a year ago. The low point was in August, last year, when inventory amounted to 427,000 tons. Normal inventory is placed at 1,100,000 tons.

While a breakdown of stocks is not available, indications are demand pressure the past month or two has been unusually heavy for sheets and strip. This is confirmed by statements of individual distributors to the effect their stock position in light flat-rolled items has been deteriorating steadily, whereas their inventories of other products, especially small bars, have been improving.

Pittsburgh — Warehouses report some slight improvement in receipts, but productwise stocks continue unbalanced. Bars and structurals are still top items on the list of most warehouse customers. Plates are in a less demanding market.

Warehouse prices are beginning to reflect the increase in mill extras and a general increase is in the offing. One warehouse has upped the price on hot-rolled bars by 15 cents per hundred, and 22 cents per hundred on cold finished.

Hot and cold-rolled sheets remain hot items on warehouse lists. Galvanized sheet is in plentiful supply, although the glutted condition of the market is beginning to show signs of easing off. The expected tonnage in seasonal orders for galvanized has not been forthcoming.

Boston — Steel warehouses are increasing base price spreads, f.o.b. shop, in addition to adding extra charges where the latter have been advanced. Average increase in base is 15 cents per 100 pounds, making hot-rolled rounds $6.57, Boston. Buying from warehouse is steady.

Chicago—Warehouse prices are being revised to reflect the increased extras which producers recently announced in flat-rolled products, bars, shapes and other items.

Philadelphia—District distributors have not yet revised prices beyond hot-rolled and cold-drawn bars. On hot-rolled rounds prices are up $3 per ton to a level of 6.75 cents per pound for country delivery and on cold-finished rounds about $4 to 7.66c.

Revisions in sheet prices will be announced once the mill extra situation is fully clarified.

New York—Increases in warehouse prices include advances in base price spreads and the passing on of extra charges. This permits distributors to maintain margins in bars, sheets and other steel products on which extras have been revised.

Los Angeles—Inquiries and sales are steady at the April level with warehouse customers buying for day-to-day requirements. Improved steel deliveries have enabled distributors to raise inventories 20 per cent since January.

Seattle—While warehouse business feels the effects of the current metalworking strike, general demand is strong and conditions as a whole are satisfactory. Heavier demand will follow settlement of current strikes.



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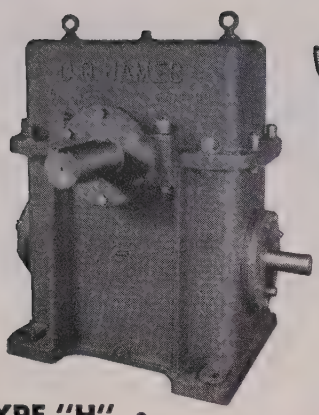
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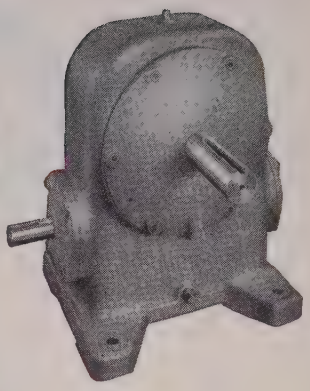
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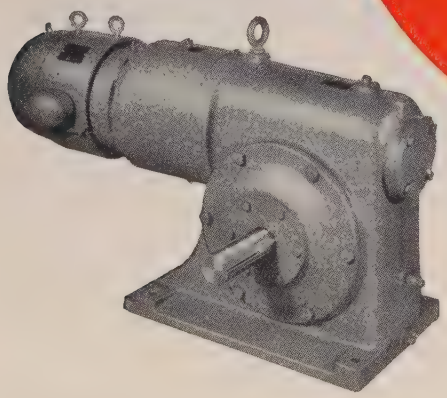
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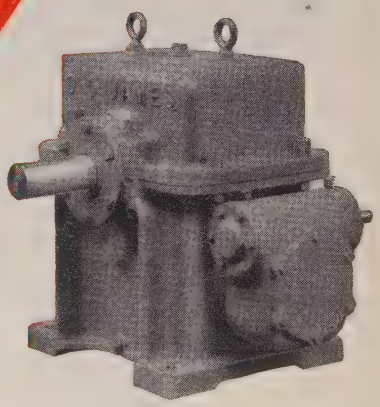
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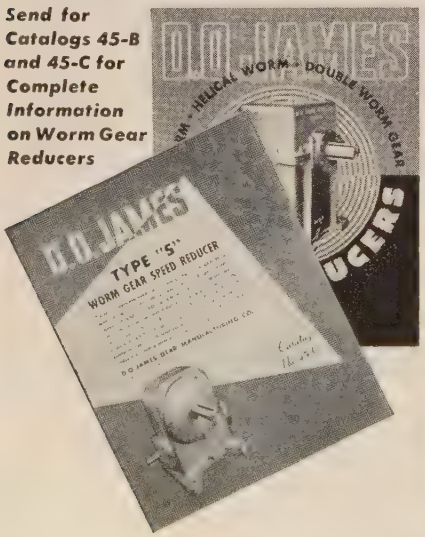
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Sheetmakers Adjusting Extras Upward

Action by several leading producers sets price pattern though a few large mills are yet to be heard from. Demand pressure continues unabated

Sheet and Strip Prices, Page 187 & 188

Cleveland—New extra cards on hot-rolled and cold-rolled carbon steel sheets have been issued by Republic Steel Corp., effective May 4. The new schedules replace those in effect since Nov. 30, 1950, and incorporate upward revisions in line with those being put into effect by other producers.

No change in base prices is involved, but the trade would not be surprised if some adjustments in base were effected after a wage settlement with the union is reached.

With demand pressure taxing mills to capacity every prospect is that the new schedules will stick without much difficulty. When demand begins to falter, however, should price shading develop it will probably show up first in the waiving of extras as has always been the case in the past.

Meanwhile, sheet mill order backlogs never were heavier. Indications are there will be such a substantial carryover from second to third quarter much of the latter period's production will be devoted to satisfying the overflow.

On top of that, should a work stoppage be experienced, a possibility with the steelworkers' union seeking another wage increase, supply conditions through the summer, if anything, will tighten further.

Some production will be lost in third quarter due to vacation curtailments but the extent of this loss cannot be readily determined.

Boston—On carbon and stainless narrow cold-rolled strip, third quarter orders already tax tentative production schedules. What happens to automotive buying will resolve the general supply problem. Without concrete details for the assumption, many look for some decline in automotive steel buying by August.

Strip and sheet orders for general industrial components are heavy, including alloys for roller link chain. Cutbacks in gun-link steel are being restored in some cases.

General inventories with cold strip converters are substantial, although specification and grade mix is not too well balanced.

New York—Strong pressure exists for sheets, with certain producers who have opened their books for the entire third quarter now being sold out completely for that period on hot and cold grades; also on certain specialties such as electrical sheets and enameling stock. Republic Steel Corp. revised extras on hot and cold sheets, effective May 4, and Armco Steel Corp., on all carbon grades, effective May 1. This included hot and cold sheets, enameling stock, electrical sheets, zinc coated sheets and long ternes.

Philadelphia—Various sheet producers have revised extras on hot and cold-rolled sheets and on certain specialties, but not all mills have as yet announced changes. However, this will be a matter of just another several days. Business remains strong in virtually all lines. Even in galvanized, trading is not poor although less active than other grades.

Pittsburgh — It seems definite that there will be heavy sheet conversion business during third quarter. Producers in the area say demand is showing no signs of weakening, and more requests for conversion tonnage have been received. Some mills will carry over tonnage in July, mainly because of the continuing high automotive and appliance demand.

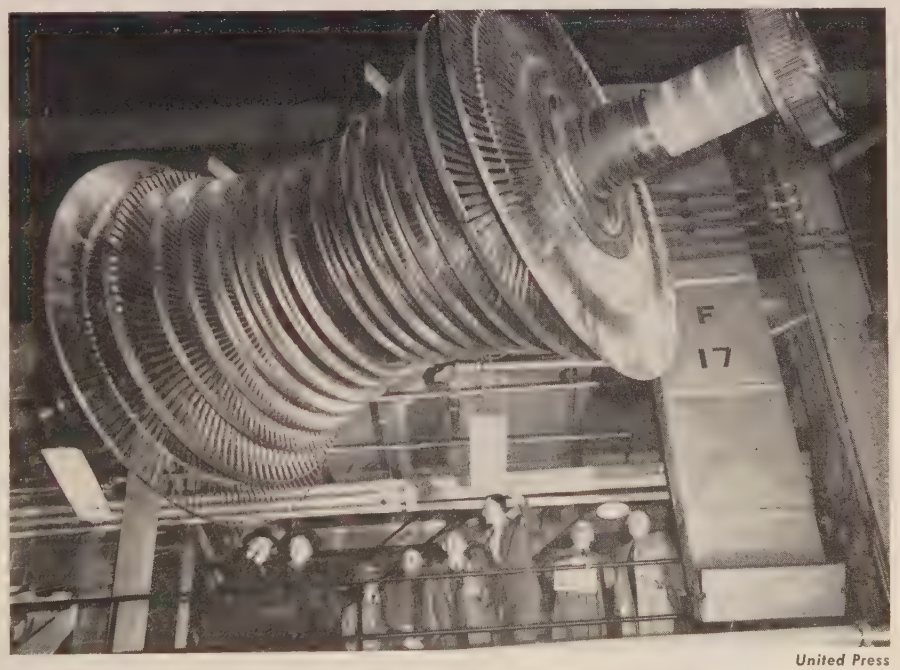
Weirton Steel announced an increase in extras for sheet and strip. These range between $1 and $2 per ton. As yet, the United States Steel Corp. has announced no increase in extras on sheets.

Chicago—Steelmakers see pressure for sheets easing coming out of third quarter but there is no positive indication of this now. Consumers generally not only continue to take their full quotas currently, but indicate they will do the same in third quarter. Some mills have not given out quotas for the July-September period and these will aim to absorb second quarter carryover.

Inland Steel Co. issued new extras on sheets, effective May 4. The increase runs between one-fourth and one-fifth cent per pound. Inland also is eliminating the differential between hot dip galvanized sheets and continuous sheets.

Los Angeles—Kaiser Steel Corp., Fontana Works is unable to accept non-defense orders for second or third quarters. Fabricators will receive no more steel by "open-end" bookings for third quarter than they did under CMP in the second.

St. Louis — Sheet prdoucers are waiting for the price-rise pattern among competitors to clarify before deciding on possible boosts in extras. Granite City Steel Co. may make a price announcement this week. Production holds high with no curtailment in sight until July or August, when Granite City Steel will



United Press

GE Shareholders Tour Turbine Plant

Shareholders attending the annual meeting of General Electric Co., Schenectady, N. Y., were conducted on a tour of a turbine plant. A few of them are shown above, viewing a 14-ton completed rotor used in one of the giant GE turbines



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pause to install the last of new equipment in a two-year modernization program. The district's sheet demand over-all shows little sign of easing. Conversion demand is high but softening a trifle.

Steel Bars . . .

Bar Prices, Page 186

Philadelphia — Following revisions in hot carbon bar extras by most producers, changes are now being made in hot alloy bar extras. Revisions also are being made by the independent cold drawers not only in cold-finished carbon bars but in cold-drawn alloy bars as well.

Stringency in virtually all grades and sizes of bars continues. Least pressure, perhaps, prevails in the small sizes of hot and cold carbon material although there is no important backing up of tonnage.

Hot carbon bar prroducers who have opened books for the entire third quarter on non-rated tonnage, as well as for military requirements, are virtually out of the market. Actually, the only reason they are not completely sold out is because of conservatism in accepting new business.

New York—While some bar producers, who have opened books for third quarter, have not booked beyond August on alloy material, they are now practically out of the market for that period on carbon grades. Some, acting on a monthly basis, have not committed themselves beyond July and have had little space available for new non-rated tonnage for that month. Meanwhile, an increasing number of producers are revising extras not only on hot carbon but hot alloy as well.

Boston—Higher prices for carbon bars are being taken in stride by consumers. Bulk of hot-rolled and cold-finished users pay more and few bar orders can be placed without some extra being applicable. For grinding, turning and polishing cold-finished the cost to consumers is highest. Size limit for these extras is also being lowered to 1⅛-in.

Pittsburgh—Most books are now open for at least a limited tonnage for third quarter. Demand is expected to continue heavy through the period but not as strong as at present. Some signs of a lessening in the frantic demand for large diameter bars is reported. For the smaller diameter bars, there still seems to be a fairly good market. Orders are plentiful, but these are settling down to normal needs and requirements basis. Over-all customers' inventories for all bars might well be larger, and better balanced. Most users



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This scene is from our short, factual color movie *"Keeping Costs Under Straps,"* showing power strapping in wire mill operations.



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seem to have most of what they need to keep production at a good pace.

Cleveland—New extras schedule has been put into effect by Republic Steel Corp. on hot-rolled alloy bars, as well as on alloy blooms, billets and slabs. The new schedule is dated May 5. This action follows the recent announcement by Republic of changes in its extras schedule on hot-rolled and cold-finished carbon bars.

Demand for bars continues persistent with no change in tight supply conditions in prospect for months to come, especially as regards to the larger sizes. The smaller sizes are in somewhat improved supply. Producers are booked as far ahead as they care to commit themselves, and with an increase in military requirements projected over coming months the prospects are there will be little open-end tonnage available for the regular commercial market for some time to come. Carryover from second to third quarter will be substantial.

Chicago — A few barmakers have not yet notified their customers as to their third quarter quotas but will do so in the next few days. These quotas will look smaller than second quarter figures, but this won't give users less tonnage actually. The new quotas are planned to clean up second quarter carryover and leave none going into fourth quarter.

Inland Steel Co. on May 1 announced increases in extras on steel bars, applying principally to size specifications, and average an increase of 1/5 cent per pound. This is the first price adjustment by Inland since government price control was lifted Mar. 17.

Plates . . .

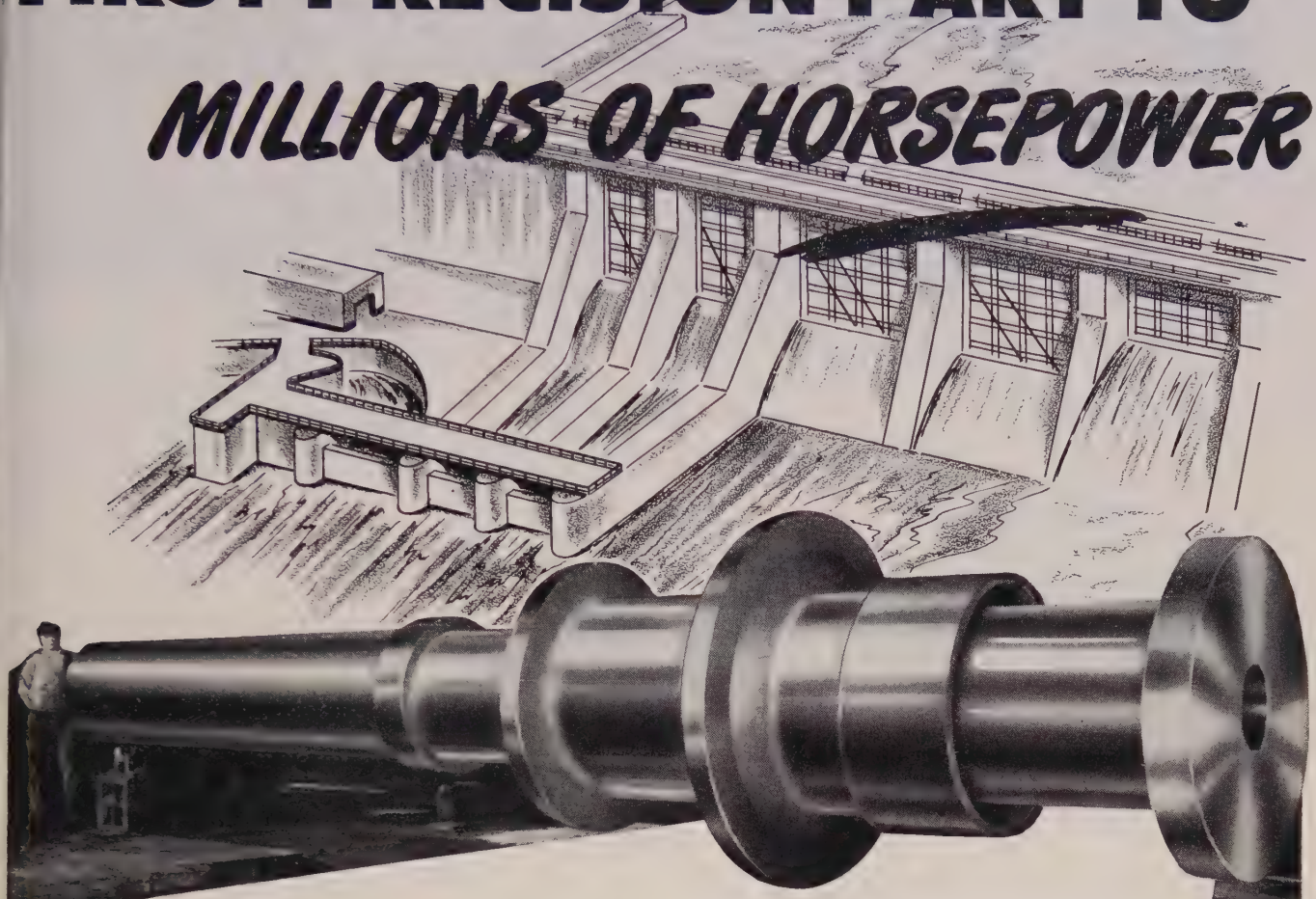
Plate Prices, Page 186

New York—Plate extras are due for early revision. Various mills now are reviewing their lists. Meanwhile, consumers report continued scarcity of sheared plate although noting some easing in universal plate. Shipyards are much concerned over the government's curtailment of martime appropriations. They are appealing to Congress for reinstatement of these appropriations, declaring that as matters now stand shipyard activity will be seriously curtailed.

Boston—Plate shops in many instances are unable to place orders for third quarter as far ahead as wanted. Producers are moving into August for scheduling. July procurement will be subnormal and this includes some narrow and light material. Inventories are low with pressure for May and June heavy. Larger vol-

(*Turn to page* 200)

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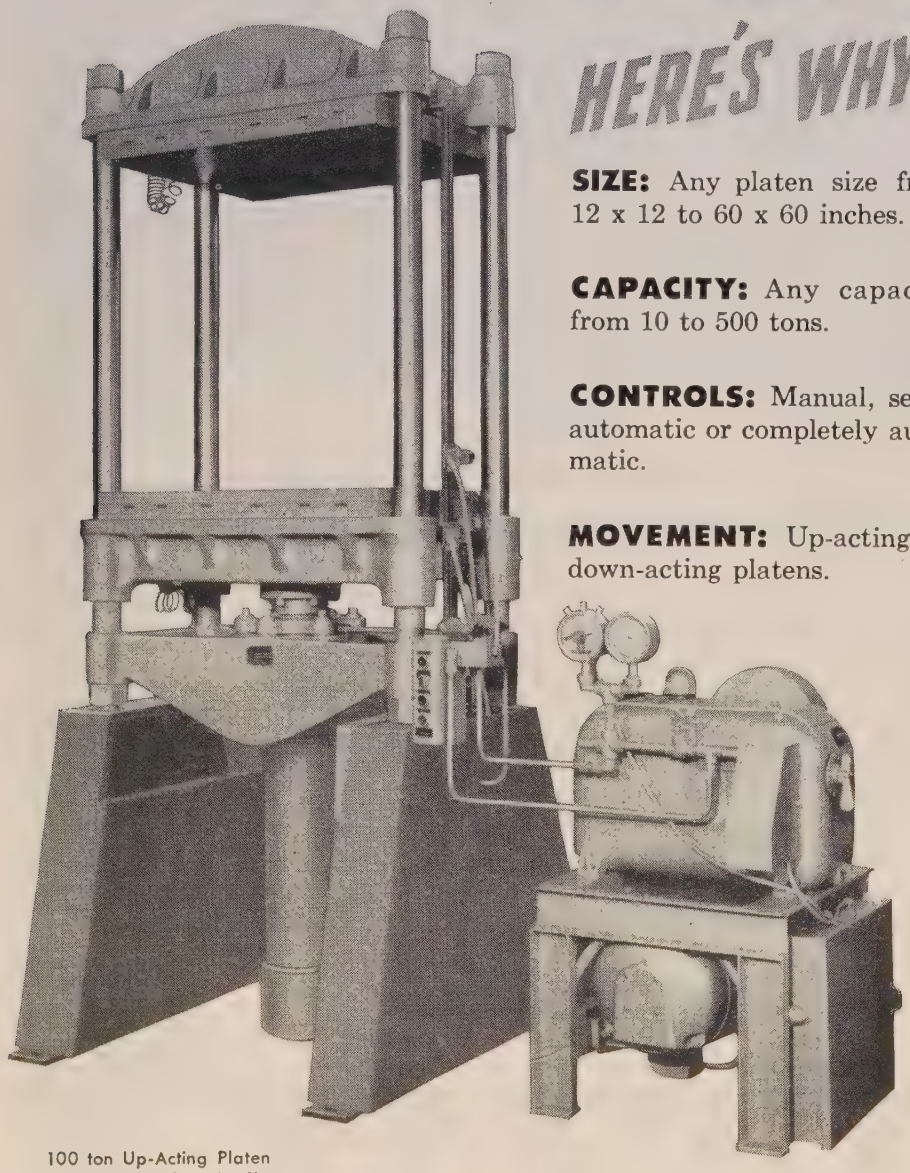
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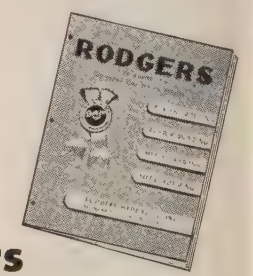
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CURRENT FERROALLOY QUOTATIONS

Prices as reported to STEEL

MANGANESE ALLOYS

Spiegeleisen: (19-21% Mn, 1-3% Si). Carlot per gross ton, $85, Palmerton, Pa.; $85, Pittsburgh and Chicago; (16% to 19% Mn) $1 per ton lower.

Standard Ferromanganese: (Mn 78-82%, C 7% approx.) Carload, lump, bulk $225 per gross ton of alloy, c.l. packed $237; gross ton lots, packed, $252; less gross ton lots, packed $269; f.o.b. Sheridan, Pa., Alloy, W. Va., Niagara Falls, N. Y., Ashtabula, Philo or Marietta, O., Lynchburg, Va. Base price: $227, Johnstown, Pa.; $228, Etna, Pa.; $226, Anaconda, Mont.

Shipment from Pacific Coast warehouses by one seller, add $33 to above prices f.o.b. Los Angeles, Oakland, Portland, Oreg. Shipment from Chicago warehouse, ton lots $267; less gross ton lots, $284, f.o.b. Chicago. Add or subtract $2.80 for each 1% or fraction thereof, of contained manganese over 82% and under 78%, respectively.

Low-Carbon Ferromanganese, Regular Grade: (Mn 85-90%). Carload, lump, bulk, max. 0.07% C, 27.95c per lb of contained Mn, carload packed 28.7c, ton lots 29.8c, less ton 31.0c. Delivered. Deduct 0.5c for max, 0.15% C grade from above prices, 1c for max, 0.30% C, 1.5c for max 0.50% C, and 4.5c for max 75% C—max 7% Si. **Special Grade:** (Mn 90% min, C 0.07% max, P. 0.06% max). Add 0.5c to the above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C. 1.5% max). Carload, lump, bulk 21.35c per lb of contained Mn, carload packed 22.1c, ton lot 23.2c, less ton 24.4c. Delivered. Spot, add 0.25c.

Manganese metal, 2" x D (Mn 96% min, Fe 2% max, Si 1% max, C 0.2% max): Carload, lump, bulk, 36.2c per lb of metal; packed, 36.95c; ton lot 38.45c; less ton lots 40.45c. Delivered. Spot, add 2c.

Electromanganese: Carload, 30c; ton lots, 32c; 250 to 1999 lb, 34c. Premium for hydrogen-removed metal, 1.5c per pound, f.o.b. cars Knoxville, Tenn. Freight allowed to St. Louis or to any point east of Mississippi.

Silicomanganese: (Mn 65-68%). Contract, lump, bulk, 1.50% C grade, 18-20% Si, 11.4c per lb of alloy, carload packed, 12.15c, ton lots 13.05c, less ton 14.05c. Freight allowed. For 2% C grade, Si 15-17%, deduct 0.2c from above prices. For 3% C grade, Si 12-14.5%, deduct 0.5c from above prices. Spot, add 0.25c.

TITANIUM ALLOYS

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max. Si 4% max, C 0.10% max). Contract, ton lots 2" x D, $1.50 per lb of contained Ti; less ton $1.55. (Ti 38-43%, Al 8% max, Si 4% max, C 0.10% max). Ton lots $1.35, less ton $1.37, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis. Spot add 5c.

Ferrotitanium, High - Carbon: (Ti 15-18%, C 6-8%). Contract $177 per net ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi river and north of Baltimore and St. Louis.

Ferrotitanium, Medium-Carbon: (Ti 17-21%, C 2-4.5%.) Contract $195 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Contract, c.l., lump, bulk 24.75c per lb of contained Cr; c.l. packed 25.65c, ton lot 26.80c, less ton 28.20c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome: (Cr 67-72%) Contract, carload, lump, bulk, max. 0.03% C 37.60c per lb contained Cr, 0.04% C 35.50c, 0.06% C 34.50c, 0.10% C 34.00c, 0.15% C 33.75c, 0.20% C 33.50c, 0.50% C 33.25c, 1% C 33.00c, 1.50% C 32.85c, 2% C 32.75c. Carload packed add 1.1c, ton lot 2.2c, less ton add 3.9c. Delivered. Spot, add 0.25c.

Foundry Ferrochrome, High Carbon: (Cr 62-66%, C 5-7%) Contract, c.l. 8 M x D, bulk, 26.25c per lb of contained Cr. C.l., packed 27.15c, ton 28.50c, less ton 30.25c. Delivered. Spot, add 0.25c.

Foundry Ferrochrome, Low Carbon: (Cr 50-54%, Si 28-32%, C 1.25% max.) Contract, carload, packed, 8 M x D, 18.35c per lb of alloy; ton lot 19.2c; less ton lot, 20.4c, delivered; spot, add 0.25c.

Low-Carbon Ferrochrome Silicon: (Cr 34-41%, Si 42-49%, C 0.05% max.) Contract, carload, lump, 4" x down and 2" x down, bulk, 25.75c per lb of contained chromium plus 12.4c per pound of contained silicon; 1" x down, bulk 25.90c per pound of contained chromium plus 12.60c per pound of contained silicon. F.o.b. plant; freight allowed to destination.

Ferrochrome Silicon, No. 2: (Cr 36-39%, Si 26-39%, Al 7-9%, C 0.05% max.) 25.75c per lb of contained silicon plus 16.4c per lb of contained silicon plus aluminum 3" x down, delivered.

Chromium Metal: (Min 97% Cr and 1% Fe) contract carload, 1" x D; packed, max 0.50% ton lots $1.14, less ton $1.16. Delivered. Spot, add 5c; prices on 0.10 per cent carbon grade, C grade, $1.12 per lb of contained chromium, up 4c.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 20.0c per lb of alloy, carload packed 20.8c, ton lot 22.3c, less ton 23.3c. Delivered. Spot add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Contract, carload, lump, bulk 10.0c per lb of alloy, carload packed 20.2c, ton lot 22.1c, less ton 23.6c. Deld. Spot add 0.25c.

SILICON ALLOYS

25-30% Ferrosilicon: Contract, carload, lump, bulk, 20.0c per lb of contained Si, packed 21.40c; ton lot 22.50c, f.o.b. Niagara Falls, freight not exceeding St. Louis rate allowed.

50% Ferrosilicon: Contract, carload, lump, bulk, 12.40c per lb of contained Si, carload packed 14.0c, ton lot 15.45c, less ton 17.1c. Delivered. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max.) Add 1.3c to 50% ferrosilicon prices.

75% Ferrosilicon: Contract, carload, lump, bulk, 14.3c per lb of contained Si, carload packed 15.6c, ton lot 16.75c, less ton 18.0c. Delivered. Spot, add 0.8c.

90-95% Ferrosilicon: Contract, carload, lump, bulk, 17.0c per lb of contained Si, carload packed 18.2c, ton lot 19.15c, less ton 20.2c. Delivered. Spot, add 0.25c.

Silicon Metal: (Min 97% Si and 1% max Fe) C.l. lump, bulk, regular 18.5c per lb of Si, c.l. packed 19.7c, ton lot 20.6c, less ton 21.6c. Add 0.5c for max, 0.10% calcium grade. Deduct 0.5c for max 2% Fe grade analyzing min 96% Si. Spot, add 0.25c.

Alsifer: (Approx. 20% Al, 40% Si, 40% Fe) Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 9.90c per lb of alloy, ton lots packed 11.30c, 20 to 1999 lb 11.65c, smaller lots 12.15c.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloy: (Zr 12-15%, Si 30-43%, Fe 40-45%, C 0.20% max.). Contract, c.l. lump, bulk 7.0c per lb of alloy, c.l. packed 7.75c, ton lot 8.5c, less ton 9.35c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.). Contract, carload, lump, packed 20.25c per lb of alloy, ton lot 21c, less ton 22.25c. Freight allowed. Spot add 0.25c.

VANADIUM ALLOYS

Ferrovanadium: Open-hearth Grade (V 35-55%, Si 8-12% max, C 3-3.5% max). Contract, any quantity, $3.10 per lb of contained V. Delivered. Spot, add 10c. **Crucible-Special Grades** (V 35-55%, Si 2-3.5% max, C 0.5-1% max), $3.20. **Primos and High Speed Grades** (V 35-55%, Si 1.50% max, C 0.20% max) $3.30.

Grainal: Vanadium Grainal No. 1, $1 per lb; No. 6, 68c; No. 79, 50c, freight allowed.

Vanadium Oxide: Contract, less carload lots $1.28 per lb contained V_2O_5, freight allowed. Spot, add 5c.

TUNGSTEN ALLOYS

Ferrotungsten: (70-80%). 10,000 lb W or more, $4.35 per lb of contained W; 2000 lb W to 10,000 lb W, $4.45; less than 2000 lb W, $4.57, f.o.b. Niagara Falls, N. Y.

BORON ALLOYS

Ferroboron: (B 17.50% min, Si 1.50% max, Al 0.50% max, C 0.50% max). Contract, 100 lb or more, 1" x D, $1.20 per lb of alloy. Less than 100 lb $1.30. Delivered, spot, add 5c. F.o.b. Washington, Pa., prices, 100 lb and over, are as follows: Grade A (10-14% B) 75c per pound; Grade B (14-18% B) $1.20; Grade C (19% min B) $1.50.

Borosil: (3 to 4% B, 40 to 45% Si), $5.25 per lb contained B, delivered to destination.

Bortam: (B 1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

Carbortam: (B 1 to 2%) contract, lump, carloads 9.50c per lb, f.o.b. Suspension Bridge, N. Y. freight allowed same as high-carbon ferrotitanium.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx. 3⅜ lb each and containing exactly 2 lb of Cr). Contract, carload, bulk, 14.50c per lb of briquet, carload packed 15.2c, ton 16.0c, less ton 16.9c. Deld. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Contract, carload, bulk 12.45c per lb of briquet, c.l. packaged 13.25c, ton lot 14.05c, less ton 14.95c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Contract, c.l. bulk 12.65c, per lb of briquet, c.l. packed 13.45c, ton lot 14.25c, less ton 15.15c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size — weighing approx. 5 lb and containing exactly 2 lb of Si). Contract, carload, bulk 6.95c per lb of briquet, c.l. packed 7.75c, ton lot 8.85c, less ton 9.45c. Delivered. Spot, add 0.25c.

(Small size—weighing approx. 2½ lb and containing exactly 1 lb of Si). Carload, bulk 7.1c, c.l. packed 7.9c, ton lot 8.7c, less ton 9.6c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

Molybdic-Oxide Briquets: (Containing 2½ lb of Mo each) $1.14 per pound of Mo contained, f.o.b. Langeloth, Pa.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 56-60%, Si 8% max., C 0.4% max). Contract, ton lot, 2" x D, $4.90 per lb of contained Cb, less ton $4.95. Delivered. Spot, add 10c.

Ferrotantalum—Columbium: (Cb 40% approx, Ta 20% approx, and Cb and Ta 60% min, C 0.30% max) ton lots, 2" x D, $3.75 per lb of contained Cb plus Ta, deld.; less ton lots $3.80.

Silicaz Alloy: (Si 35-40%, Ca 9-11%, Al 6-8%, Zr 3-5%, Ti 9-11%, B 0.55-0.75%). Carload packed, 1" x D, 45c per lb of alloy, ton lot 47c, less ton lot 49c. Delivered.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr, 5-7%, Fe 20% approx). Contract, carload, packed, ½" x 12 M, 17.5c per lb of alloy, ton lots 18.25c, less ton 19.5c. Deld. Spot, add 0.25c.

Graphidox No. 4: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.l. packed, 18c per lb of alloy; ton lots 19c; less ton lots 20.50c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

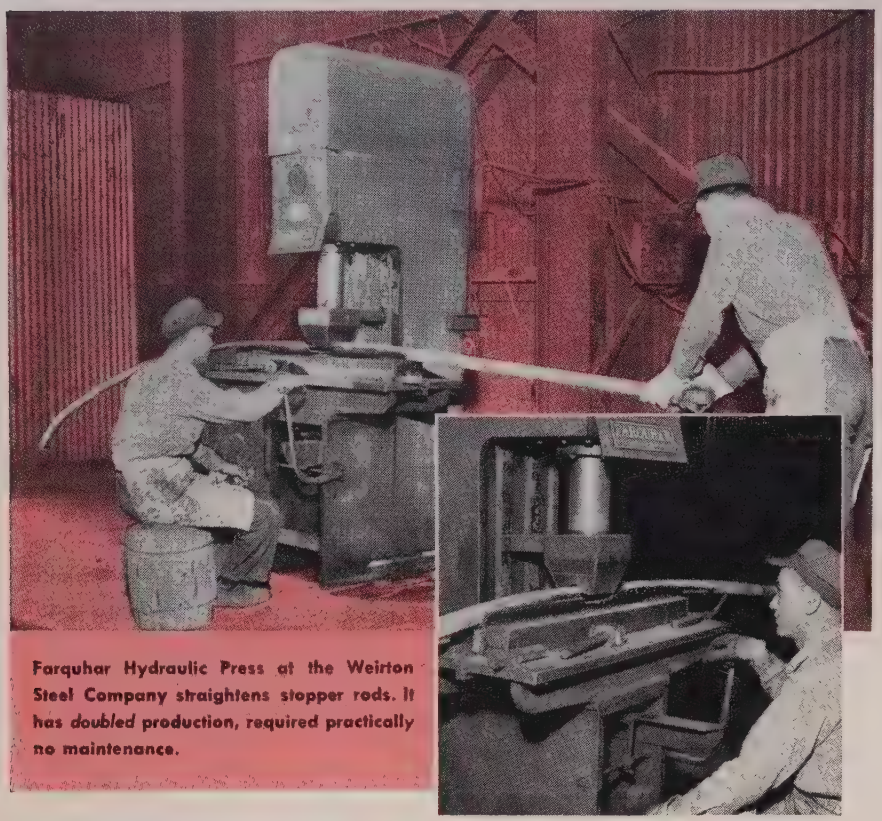
V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.l. packed, 15c per lb of alloy; ton lots 16.50c; less ton lots 17.75c, f.o.b., Niagara Falls; freight allowed to St. Louis.

Simanal: (Approx. 20% each Si, Mn, Al; bal. Fe) Lump, carload, bulk 14.50c, packed 15.50c; ton lots, packed, 15.75c; less ton lots, packed, 16.25c per lb of alloy, delivered to destination within United States.

Ferrophosphorus: (23-25% based on 24% P content with unitage of $3 for each 1% of P above or below the base); carloads, f.o.b. sellers' works, Mt. Pleasant, Siglo, Tenn., $65 per gross ton.

Ferromolybdenum: (55-75%). Per lb, contained Mo f.o.b. Langeloth, $1.32 in all sizes except powdered which is $1.41; Washington, Pa., furnace, any quantity $1.32.

Technical Molybdic-Oxide: Per lb, contained Mo, f.o.b. Langeloth, Pa., $1.14, in cans; in bags, $1.13, f.o.b. Langeloth, Pa.; Washington, Pa., $1.13.



Farquhar Hydraulic Press at the Weirton Steel Company straightens stopper rods. It has *doubled* production, required practically no maintenance.

Farquhar Hydraulic Press

at the Weirton Steel Co.

"eliminates breakage of rods...increases production 100%"

The Weirton Steel Co., Weirton, W. Va., formerly straightened stopper rods with a steam hammer. The operation was slow and resulted in a high percentage of breakage. Seeking a better method, Weirton officials bought a Farquhar Press to speed production. Not only has the press increased production 100%, but it has eliminated breakage of rods. In addition, Weirton reports that in the six years this press has been operating, "practically no maintenance has been necessary."

Farquhar Presses Cut Your Costs

Just one more example of cost-cutting Farquhar performance in modern production! Farquhar Presses are built for the job . . . assure faster production due to rapid advance and return of the ram . . . greater accuracy because of the extra guides on the moving platen . . . easy, smooth operation with finger-tip controls . . . longer life due to positive control of speed and pressure on the die . . . long, dependable service with minimum maintenance cost.

Farquhar engineers are ready to help solve whatever production problem you may have. Send for free catalog showing Farquhar Built-for-the-Job Presses in all sizes and capacities. Write to THE OLIVER CORPORATION, A. B. Farquhar Division, *Hydraulic Press Dept.*, 1522 Duke St., York, Pennsylvania.

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Extruding • Joggling • Forging • and other Metalworking Operations

THE OLIVER CORPORATION, A. B. FARQUHAR Division

(*Continued from page* 196)

ume of plates is going into electric welded pipe and more tonnage is going to yards with contracts for naval vessels.

Philadelphia—While some plate producers are studying extras with a view to making changes soon, no announcements have yet been made. Currently, demand remains active, although perhaps not quite so pressing as three months ago. Exception lies in light gages of boiler quality steel.

Pittsburgh — A full third quarter demand seems likely for steel plates. Carbuilders have re-entered the market although their orders are on a slightly more current basis, and tank builders are asking for as much steel as they can get. Not much open space seems likely in third quarter books, but it is admitted buyers are becoming more selective as to gages. Particularly in the thinner gage plates, customers want and order exactly the thickness of plate they need, will take no substitute sizes.

Seattle — Plate fabricating shops are marking time pending settlement of the current metalworking strike. Important contracts are being delayed, including government work.

Wire . . .

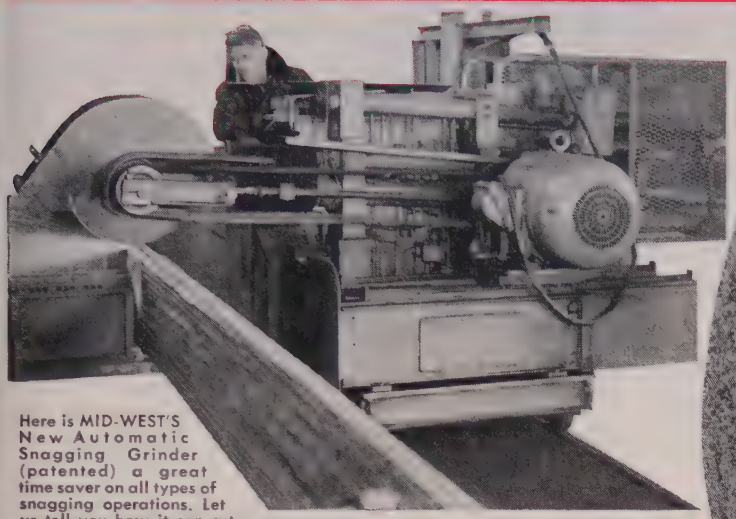
Wire Prices, Page 188

Boston—Wire extras, primarily directed toward pricing on the basis of man-hours per ton, will ultimately reduce selective selling. Products previously sold on a narrow margin will be more in line with more profitable items. Improved balance in supply is expected with profit margins more uniform. Many wire products are affected, industrial quality manufacturers wire going up $5 per ton.

Wire volume covered by tickets through second quarter will generally be shipped, also some open-end tonnage. Expecting a letdown in July production schedules, more pressure is being exerted for May and June deliveries.

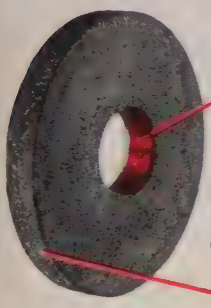
New York—Heavier demand for music wire reflects improvement with spring manufacturers. Volume is substantially ahead of the closing months of last year with most coilers. Slight improvement in heddle wire mildly sparks slow buying by the textile industry. Higher carbon wire producers are booked deeper into third quarter with pressure strong from the automobile industry. Closely watched is demand for valve spring wire, a reliable barometer in automotive steel buying. There are no cutbacks despite fair stocks.

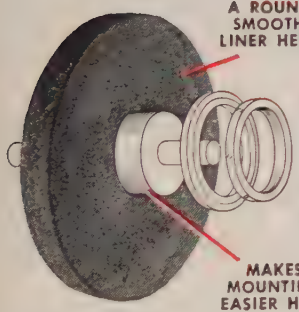
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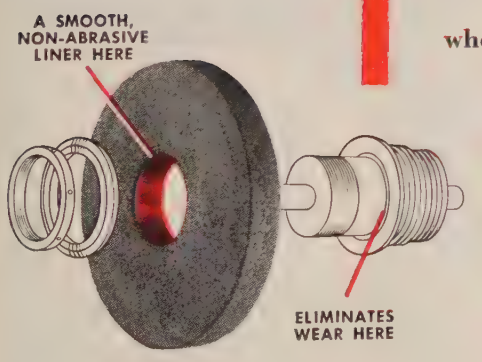


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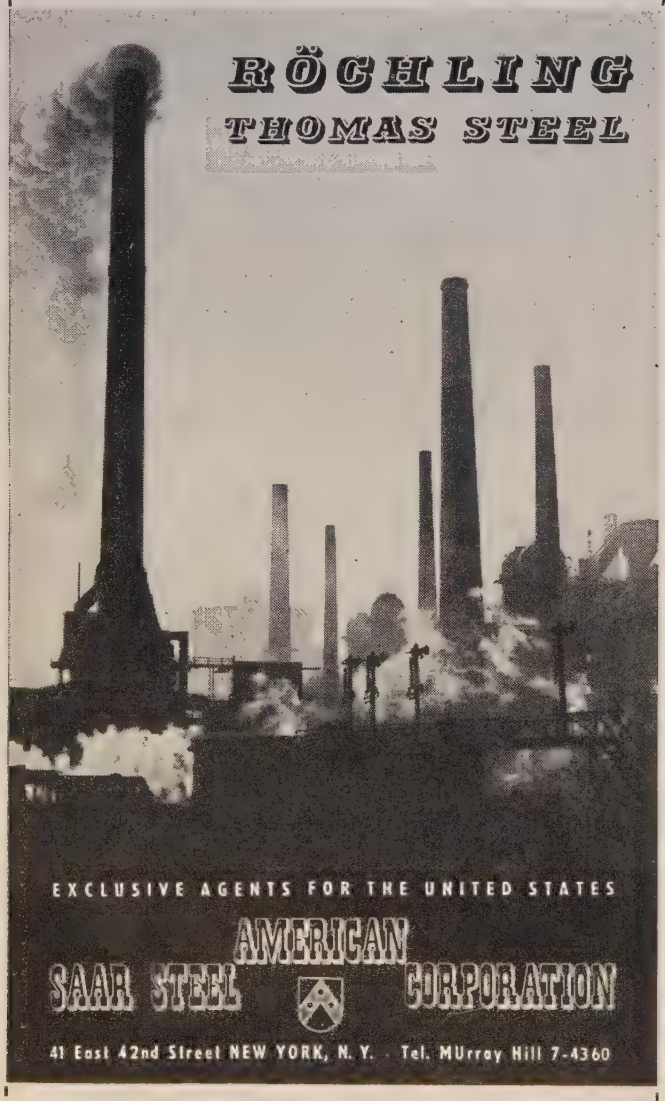
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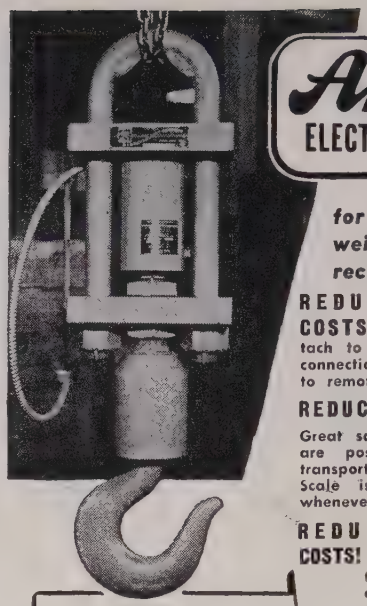
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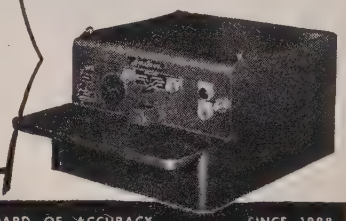
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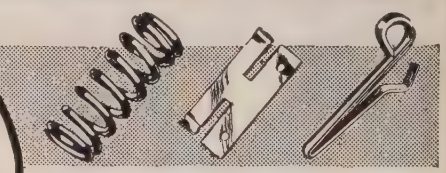
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ORES–COKE–REFRACTORIES

Prices as reported to STEEL; changes shown in Italic.

ORES

Lake Superior Iron Ore

(Prices effective for ore delivered up to and including June 30, 1953; gross ton, 51.50% iron natural, rail or vessel, lower lake ports.)

Old range bessemer	$10.10
Old range nonbessemer	9.95
Mesabi bessemer	9.85
Mesabi nonbessemer	9.70
Open-hearth lump	10.95
High phosphorus	9.70

The foregoing prices are based on upper lake rail freight rates, lake vessel freight rates, handling and unloading charges, and taxes thereon, which were in effect on Dec. 31, 1952, and increases or decreases after such date are for buyer's account.

Eastern Local Iron Ore

Cents per unit del. E. Pa.

Foundry and basic 56-62% concentrates contract	17.00-18.00

Foreign Iron Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 60 to 68%:	
Spot	nom.
Long-term contract	22.00
North African hematites (spot)	24.00-26.00
Brazilian iron ore, 68-69% (spot)	25.00

Tungsten Ore

Net ton unit, duty paid

Foreign wolframite and scheelite, per net ton unit	$55.00
Domestic scheelite, mine	63.00

Manganese Ore

Manganese, 48% nearby, $1.18-1.21 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; shipments against old contracts for 48% ore are being received from some sources at 90c-93c.

Chrome Ore

Gross ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., or Tacoma, Wash.

Indian and African

48% 2.8:1	$40.00-$42.00
48% 3:1	44.00-46.00
48% no ratio	32.00-34.00

South African Transvaal

44% no ratio	$27.00-28.00
48% no ratio	34.00-35.00

Brazilian

44% 2.5:1 lump	nom. $32

Domestic

(Rail nearest seller)

48% 3:1	$39.00

Molybdenum

Sulphide concentrates per lb. molybdenum content, mines	$1.00

REFRACTORIES

Fire Clay Brick

High-Heat Duty: Pueblo, Colo., $89.00; Ashland, Grahn, Hayward, Hitchins, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwensville, Lochhaven, Lumber, Orviston, West Decatur, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parral, Portsmouth, O., Ottawa, Ill., Stevens Pottery, Ga., Woodbridge, N. J., $99.30; Salina, Pa., $104.55; Niles, O., $109; Los Angeles, Pittsburg, Calif., $132.30.

Silica Brick

Standard: Alexandria, Claysburg, Mt. Union, Sproul, Pa., Ensley, Ala., Portsmouth, O., $99.30; Hays, Pa., $105.10; Niles, O., $107; E. Chicago, Ind., Joliet, Rockdale, Ill., $109.70; Cutler, Utah, $116.55; Los Angeles, $122.85.

Insulating Fire Brick

2300° *F*: Massillon, O., $178.50; Clearfield, Pa., $179.55; Augusta, Ga., Beaver Falls, Zelienople, Pa., Mexico, Mo., $186.90.

Ladle Brick

Dry Pressed: Bessemer, Ala., $64.60; Alsey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Pa., Wellsville, O., $69.30; Mexico, Mo., $73.50; Clearfield, Pa., Portsmouth, O., $83; Perla, Ark., $92.40; Los Angeles, $110.25; Pittsburg, Calif., $111.30.

Sleeves

Reesdale, Pa., $127; Johnstown, Pa., $127.30; Clearfield, Pa., $135; St. Louis, $138; Athens, Tex., $140.90.

Nozzles

Reesdale, Pa., $203.20; Johnstown, Pa. $208.40; Clearfield, Pa., $219.45; St. Louis, $224.65; Athens, Tex., $225.20.

Runners

Reesdale, Pa., $158.20; Johnstown, Pa., $161.70; Clearfield, Pa., $168.60; St. Louis, $170.30; Athens, Tex., $174.40.

High-Alumina Brick

50 *Per Cent*: Clearfield, Pa., St., Louis, Mexico, Mo., $166.30; Danville, Ill., $169.30.
60 *Per Cent*: St. Louis, Mexico, Vandalia, Mo., $210.20; Danville, Ill., $213.20.
70 *Per Cent*: St. Louis, Mexico, Vandalia, Mo., $244.85; Danville, Ill., $247.85; Clearfield, Pa., $252.

METALLURGICAL COKE

Price per net ton

Beehive Ovens

Connellsville, furnace	$14.50-15.00
Connellsville, foundry	16.50-17.00
New River foundry	20.80
Wise county foundry	15.95
Wise county, furnace	15.20

Oven Foundry Coke

Kearney, N. J. ovens	$24.00
Everett, Mass., ovens	
New England, del.	*26.00
Chicago ovens	24.50
Chicago, del.	26.00
Terre Haute, ovens	24.05
Milwaukee, ovens	25.25
Indianapolis, ovens	24.25
Chicago, del.	28.12
Cincinnati, del.	25.85
Painesville, O., ovens	25.50
Cleveland, del.	27.43
Erie, Pa., ovens	25.00
Birmingham, ovens	21.65
Cincinnati, del.	26.58
LoneStar, Tex. ovens	18.50
Philadelphia, ovens	23.95
Swedeland, Pa., ovens	23.85
St. Louis, ovens	
St. Louis, del.	26.00
Portsmouth, O., ovens	24.00
Cincinnati, del.	26.62
Detroit, ovens	25.50
Detroit, del.	26.50
Buffalo, del.	28.08
Flint, del.	28.23
Pontiac, del.	27.06
Saginaw, del.	28.58

*Or within $4.55 freight zone from works.

COAL CHEMICALS

Spot, cents per gallon, ovens

Pure benzol	36.00
Toluol, one deg.	30.00-33.00
Industrial xylol	30.00-33.50

Per ton, bulk, ovens

Sulphate of ammonia	$44-45
Birmingham area	$49.50

Cents per pound, ovens

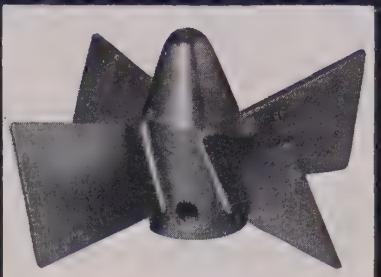
Phenol, 40 (carlots, nonreturnable drums)	17.25

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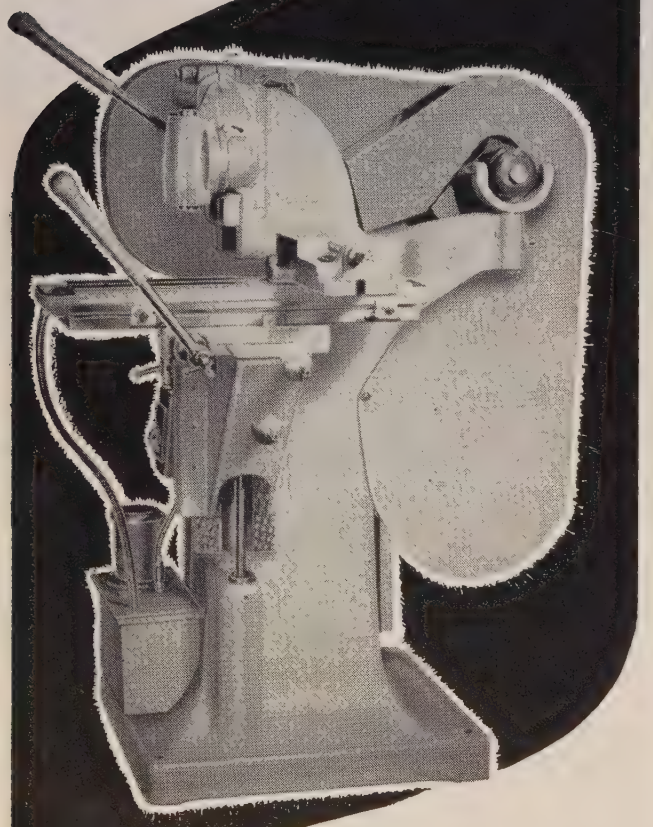
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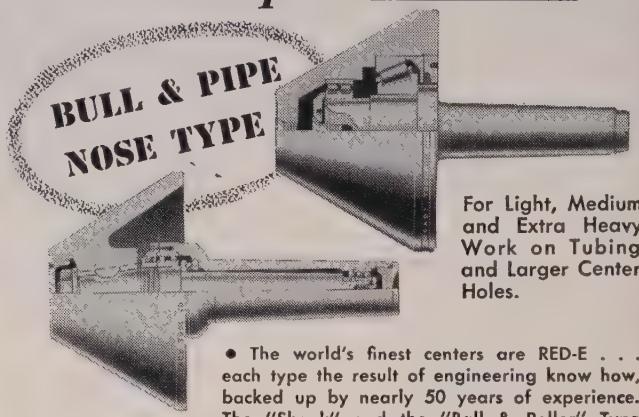
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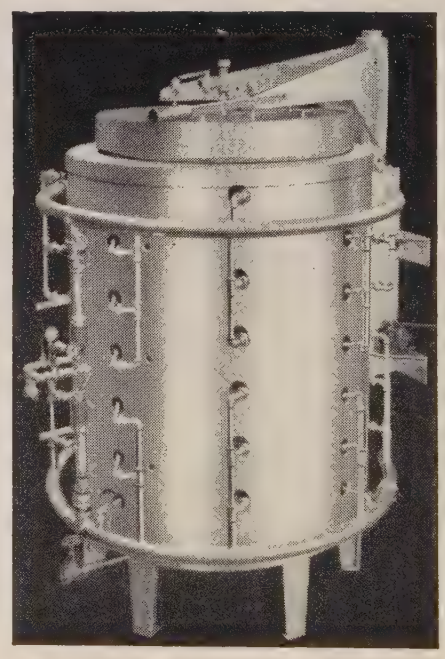
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996 LAFAYETTE STREET, ELIZABETH 4, N. J.

Semifinished Steel . . .

Semifinished Prices, Page 186

Owensboro, Ky.—Green River Steel Corp. has opened its order books for third quarter delivery. The company will have annual capacity of 198,000 tons, and will produce chiefly high grade alloy steel. The mill will melt about 13 carloads of scrap daily in two electric furnaces.

Boston—Inland Steel Co., Chicago, is low on 5000 tons, carbon steel ingots, 16 to 20-inch square, Watertown arsenal at 4.95c per pound. Ingots are for remelting.

Structural Shapes . . .

Structural Shape Prices, Page 186

Pittsburgh—A substantial tonnage is building up for third quarter books, and general opinion is that there will be few deferments. While structural fabricators are not pushing as hard for material as they have in the past, they still indicate a healthy interest in as much material as they can get for third quarter. The fact they are not pressing for structurals as they have in months past seems to indicate the beginning of an easier supply picture. With tonnage deliveries now running late, any sloughing off of demand will be forestalled accordingly. By early third quarter, supply and demand should be fairly well balanced, it is said.

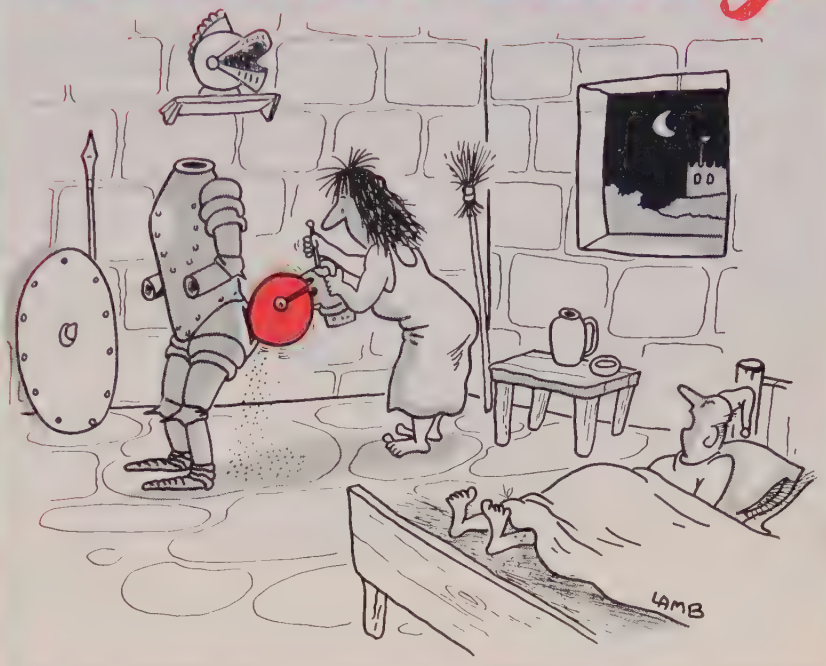
Boston—Plain structural material, notably wide flanged beams, is becoming more difficult to obtain with outlook for improvement in second half clouded. Substantial volume of orders carry old CMP allotment numbers, some extending into fourth quarter. Fabricating shop inventories are out of balance with most confronted with the necessity of paying premiums or buying foreign steel for fill-in requirements. Active bridge volume is under last year, less than 2000 tons, exclusive of New York state thruway tonnage being bought by district contractors.

New York—Public work, primarily bridges, features the structural market. On May 7 the New York Thruway Authority closed bids on 6000 tons for Oneida county, 2900 tons for Monroe county, 2000 tons for a project falling in Orange and Ulster counties and 500 tons for Onondaga county, a total of 11,400 tons. On the same date the State Highway Commission closed on 1100 tons for another section of the Major Deegan Expressway in Bronx county. The day before New York city closed on 4400 tons for a hospital at Coney Island. A leading award involves

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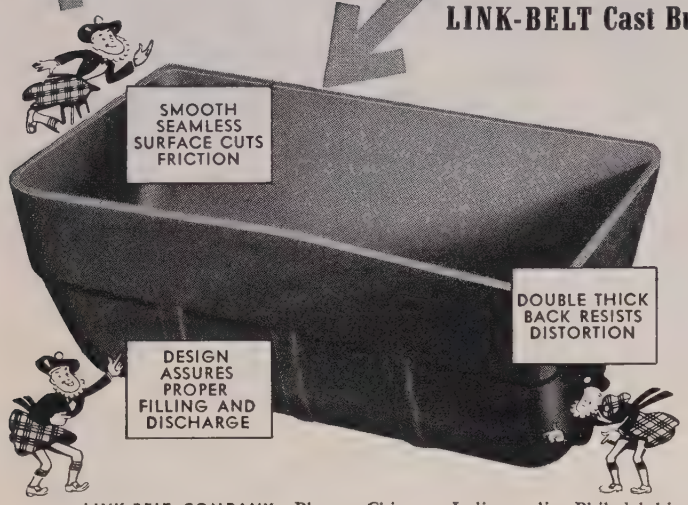
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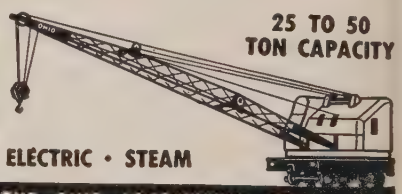
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2500 tons for a research laboratory unit at Ft. Monmouth, N. J.

Philadelphia — Structural workers and certain other building trades unions have gone on strike tying up not only structural erection work but also reinforcing construction here. Some structural fabricators report backing up of tonnage at their shops as a result.

Seattle—Important projects involving structurals are up for early bidding including heavy sections for the Fairchild hangar, near Spokane, Wash., bids in May 8 to the U. S. Engineer, Seattle.

Rails, Cars . . .

Track Material Prices, Page 188

Chicago—Inland Steel Co. increased the base price on rails $6 per ton and on track accessories $3 per ton, effective May 5.

Tubular Goods . . .

Tubular Goods Prices, Page 189

Boston — Steel pipe distributors have stocks in balance and demand pressure has eased slightly for seamless. Buttweld allotments are not being taken up and tonnage is more difficult to sell by direct shipments. One pipe producer has withdrawn buttweld allotments. Mechanical and pressure tubing demand holds up. While light carbon tubing is soft, alloy and stainless grades are in strong demand.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 186

Los Angeles — Fabricators' backlogs of engineering construction orders continue to grow but smaller tonnages are involved. Compared with like period last year order books of one major fabricator include 125 jobs against 85 jobs.

Seattle—Rolling mills are operating at capacity here. Backlogs are up, reflecting recent awards. No major tonnages are pending for immediate placement but a substantial run of small jobs is reported.

Pig Iron . . .

Pig Iron Prices, Page 182

Philadelphia—Pig iron is in fairly tight supply locally, a fact attributed more to some furnace suspensions over recent weeks for repairs than to any particular improvement in demand, especially from the gray iron shops.

Approximately 11,000 tons of Australian basic iron arrived here recently for the Colorado Fuel & Iron Corp. —the first of some 60,000 tons under contract. The bulk of this iron is scheduled for the Claymont, Del., plant, although some is scheduled for the Roebling, N. J., works. A lot of 800 tons of German iron, with specifications somewhat on the bessemer side, has been sold in this district around $52.00-$53.00 f.o.b. cars this city, or a few dollars under domestic competition. Talk is heard of some Turkish basic being offered. Actually it appears the owners are simply sounding out the market and so far as can be learned have not set any definite asking price.

Cleveland—Merchant pig iron sellers are seeking business more aggressively. While they are disposing of their output and no surplus stocks are accumulating, demand pressure is not what it was months back. Foundry operations are spotty, and there is a disinclination to order heavily for inventory.

Some of the shops on automotive and appliance castings have been doing better over recent weeks, but some iron sellers are apprehensive of a letdown in this area of their market. Last week, it is pointed out, a strike of production workers was threatened at a local foundry by the United Automobile Workers AFL in a dispute over a shortened work-

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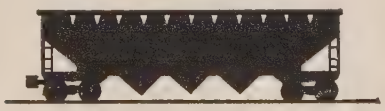
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GENERAL SPECIFICATIONS

Capacity, Nominal 140,000 lbs.	**Cubic Capacity, level full** 2700 Cu. Ft.
Load Limit, average 158,800 lbs.	**Inside Length** 40 ft. 5 in.
Light Weight, average 51,200 lbs.	**Inside Width** 10 ft. 1 in.
Date Built 1929	**Height Overall** 10 ft. 8 in.

Write for specification sheet giving complete information.



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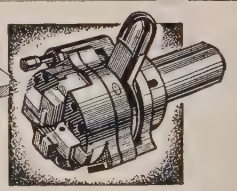
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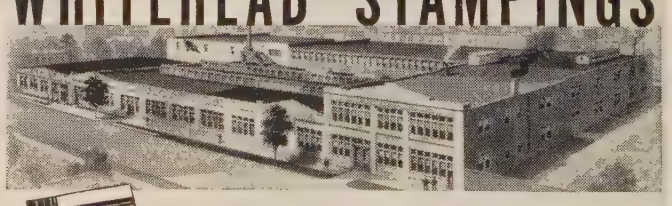


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1903 50th ANNIVERSARY 1953

week. The union, it is understood, is asking the company to lay off some workers instead of spreading the work among all 600 employees by giving them two or three days work weekly.

Boston—Pig iron consumers are well fixed as to inventory and most foundries are releasing orders at about the rate of current consumption, which, for most gray iron and malleable shops, is below capacity. Supply of basic iron from Troy, N. Y., and Texas is ample. Some foreign basic iron has been offered at $58.50 dock.

New York—Pig iron demand shows little variation, with supply of foundry grades adequate. Despite the advancing spring season, district gray iron shop operations lag. Most foundries are operating five days a week with restricted crews.

Buffalo—Despite talk of tapering demand merchant pig iron sellers report no difficulty in finding an outlet for their current production. Michigan automotive castings shops continue active buyers.

St. Louis—Pig iron consumers are in safe but not lavish inventory position. Few have ground stocks of basic iron. Fewer are in any scarcity distress. Demand for foundry iron is reported better in this district than in most others, possibly because recent temporary shutdown of an outside supplier boosted calls here.

Iron Ore . . .

Iron Ore Prices, Page 203

Cleveland—Iron ore is moving from the head of the lakes in record volume. Shipments in the week ended May 4 totaled 2,930,527 tons, according to the Lake Superior Iron Ore Association. This topped the movement in the like week of 1952 by 723,008 tons, and brought total shipments for the 1953 season to date to 10,145,148 tons or 2,660,397 more than in the like period of last year. April shipments totaled 8,403,842 tons, second largest April tonnage on record.

Pittsburgh Steamship Division of U. S. Steel Corp. last week reported that its 64 lake carriers in April set a new all time record for movement of iron ore. The fleet carried a total of 2,977,000 gross tons, 206,000 more than the previous record month of 2,771,000 established in April 1949.

Ford Motor Co.'s new 647-foot ore ship, the *William Clay Ford,* was launched May 5 at Great Lakes Engineering Works, River Rouge, Mich. The new ship has over-all length of 647 feet, a beam of 70 feet, and a depth of 36 feet. It will will carry 19,000 gross tons.

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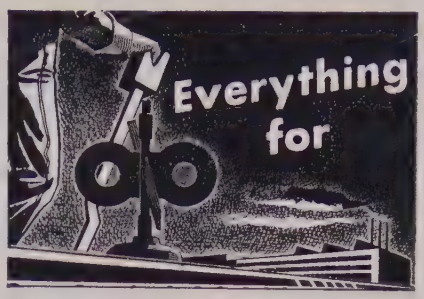
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IRON AND STEEL SCRAP

Consumer prices, per gross ton, except as otherwise noted, including broker's commissions, as reported to STEEL. Changes shown in italics.

STEELMAKING SCRAP COMPOSITE

May 7	$39.67
Apr. 30	41.67
Apr. avg.	43.05
May 1952	43.00
May 1948	40.67

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

PITTSBURGH

(Delivered consumer plant)

No. 1 heavy melting	*39.00-40.00*
No. 2 heavy melting	*36.00-37.00*
No. 1 bundles	*39.00-40.00*
No. 2 bundles	*33.00-34.00*
No. 1 busheling	*39.00-40.00*
Machine shop turnings	*26.50-27.50*
Mixed borings, turnings	*26.50-27.00*
Short shovel turnings	*31.00-32.00*
Cast iron borings	*31.00-32.00*
Cut structurals	48.00*
Heavy turnings	41.00-42.00*
Punchings & plate scrap	48.00-49.00*
Electric furnace bundles	46.00*

Cast Iron Grades

No. 1 cupola	*40.00-41.00*
Charging box cast	*39.00-40.00*
Heavy breakable cast	40.00-41.00
Unstripped motor blocks	*35.00-36.00*
No. 1 machinery cast	*49.00-50.00*

Railroad Scrap

No. 1 R.R. heavy melt.	46.00-47.00
Rails, 2-ft. and under.	52.00-53.00
Rails, 18-in. and under	54.00-55.00
Rails, random lengths.	48.00-49.00
Railroad specialties	51.00-52.00

*Plus applicable freight spring-boards from other areas.

CLEVELAND

(Delivered consumer plant)

No. 1 heavy melting	*39.00*
No. 2 heavy melting	*34.00-34.50*
No. 1 bundles	*39.00-40.00*
No. 2 bundles	*32.00-33.00*
No. 1 busheling	*38.00-39.00*
Machine shop turnings	*22.00-23.00*
Mixed borings, turnings	*27.00-28.00*
Short shovel turnings	*27.00-28.00*
Cast iron borings	*27.00-28.00*
Low phos.	*43.00-44.00*
Alloy free, short shovel turnings	*30.00-31.00*
Electric furnace bundles	*41.00-42.00*

Cast Iron Grades

No. 1 cupola	*45.00-46.00*
Charging box cast	*44.00-45.00*
Stove plate	*44.00-45.00*
Heavy breakable cast	*39.00-40.00*
Unstripped motor blocks	*27.00-28.00*
Brake shoes	*39.00-40.00*
Clean auto cast	*50.00-51.00*
No. 1 wheels	*40.00-41.00*
Burnt cast	*37.00-38.00*
Drop broken machinery	*46.00-48.00*

Railroad Scrap

No. 1 R.R. heavy melt.	46.00-47.00
R.R. Malleable	49.00-50.00
Rails, 3-ft. and under	*54.00-55.00*
Rails, 18-in. and under	*55.00-56.00*
Rails, random lengths	*50.00-51.00*
Cast steel	49.00-50.00
Railroad specialties	*50.00-51.00*
Uncut tires	*49.00-50.00*
Angles, splice bars	*52.00-53.00*
Rails, rerolling	53.00-54.00

YOUNGSTOWN

(Delivered consumer plant)

No. 1 heavy melting	*41.00-42.00*
No. 2 heavy melting	*34.00-35.00*
No. 1 bundles	*41.00-42.00*
No. 2 bundles	*33.00-34.00*
Machine shop turnings	22.00-23.00
Short shovel turnings	29.00-30.00
Cast iron borings	30.00-31.00
Low phos.	*47.00-48.00*
Electric furnace bundles	*42.00-43.00*

Railroad Scrap

No. 1 R.R. heavy melt.	46.00-47.00

PHILADELPHIA

(Delivered consumer plant)

No. 1 heavy melting	*42.00*
No. 2 heavy melting	38.00-39.00
No. 1 bundles	*42.00*
No. 2 bundles	33.00-34.00*
No. 1 busheling	*42.00*
Machine shop turnings	*27.00-28.00*
Mixed borings, turnings	32.00-33.00
Short shovel turnings	33.00-34.00
Structurals & Plate	45.50-46.00
Heavy turnings	39.50-40.50
Couplers, springs, wheels	50.00

Cast Iron Grades

No. 1 cupola	39.00-40.00
Charging box cast	41.00-42.00
Heavy breakable cast	43.00-44.00*
Unstripped motor blocks	31.00-32.00
Drop broken machinery	47.00-48.00

*Nominal

NEW YORK

(Brokers' Buying Prices)

No. 1 heavy melting	*34.00-35.00*
No. 2 heavy melting	30.00
No. 2 bundles	*19.00*
Machine shop turnings	20.50-21.00
Mixed borings, short turnings	*22.00-22.50*
Low phos. (structural & plate)	*37.00-38.00*
Shovel turnings	*22.00-22.50*

Cast Iron Grades

No. 1 cupola	34.00
Unstripped motor blocks	*22.50-23.00*

BOSTON

(Brokers' Buying Prices; f.o.b. shipping points)

No. 1 heavy melting	*32.00-32.50*
No. 2 heavy melting	*29.00*
No. 1 bundles	*32.00-32.50*
No. 2 bundles	*27.00*
Machine shop turnings	*20.00-21.00*
Mixed borings, turnings	*20.00-21.00*
Short shovel turnings	*23.00-24.00*
No. 1 cast	34.00-35.00
Mixed cupola cast	32.00-33.00
No. 1 machinery cast	46.00-47.00

DETROIT

No. 1 heavy melting	*37.00-38.00*
No. 2 heavy melting	*30.00-31.00*
No. 1 bundles	*37.00-38.00*
No. 2 bundles	*23.00-24.00*
No. 1 busheling	40.00-41.00
Machine shop turnings	*15.00-16.00*
Mixed borings, turnings	*15.00-16.00*
Short shovel turnings	*19.00-20.00*
Punchings & plate scrap	*40.00-41.00*

Cast Iron Grades

No. 1 cupola	47.50
Charging box cast	*39.00-40.00*
Stove plate	*39.00-40.00*
Heavy breakable	29.00-30.00
Unstripped motor blocks	30.00
Clean auto cast	*42.00-43.00*
Malleable	48.00

CINCINNATI

(Delivered consumer plant)

No. 1 heavy melting	*41.00*
No. 2 heavy melting	*37.00*
No. 1 bundles	*41.00*
No. 2 bundles	*34.00*
No. 1 busheling	*41.00*
Machine shop turnings	*23.00*
Mixed borings, turnings	*27.00**
Short shovel turnings	*27.00**
Cast iron borings	*27.00**

Cast Iron Grades

No. 1 cupola	*43.00*
Charging box cast	40.00
Stove plate	*30.00**
Burnt cast	*30.00**
Heavy breakable cast	37.00*
Unstripped motor blocks	30.00
Brake shoe	*30.00**
Clean auto cast	*38.00*
Drop broken machinery	48.00

Railroad Scrap

No. 1 R.R. heavy melt.	*43.00*
Malleable	46.00
Rails, 18-in. and under	57.00
Rails, random lengths	48.00

*F.o.b. shipping point.

CHICAGO

No. 1 heavy melting	*37.00-38.00**
No. 2 heavy melting	*35.00-36.00**
No. 1 bundles	*40.00-41.00**
No. 2 bundles	*32.00-33.00**
No. 1 busheling	*37.00-38.00**
Machine shop turnings	*19.00-20.00**
Mixed borings, turnings	*19.00-20.00**
Short shovel turnings	*20.00-22.00**
Cast iron borings	*19.00-20.00**
Cut structurals	*43.00-44.00**
Electric furnace bundles	*43.00-45.00**

Cast Iron Grades

No. 1 cupola	*41.00-42.00*
Stove plate	*36.00-38.00*
Unstripped motor blocks	*35.00-37.00*
Clean auto cast	*44.00-46.00*
Drop broken machinery	*43.00-45.00*

Railroad Scrap

No. 1 R.R. heavy melt.	*43.00-45.00*
R.R. Malleable	*43.00-45.00*
Rails, 2-ft. and under.	52.00-54.00
Rails, 18-in. and under	54.00-56.00
Angles, splice bars	*51.00-53.00*
Rails, rerolling	*48.00-50.00*

*Plus applicable freight spring-boards from other areas.

BIRMINGHAM

No. 1 heavy melting	37.00-38.00
No. 2 heavy melting	33.00-34.00
No. 1 bundles	37.00-38.00
No. 2 bundles	31.00-32.00
No. 2 busheling	35.00-36.00
Machine shop turnings	26.00-27.00
Mixed borings, turnings	31.00-32.00
Short shovel turnings	28.00-29.00
Cast Iron borings	28.00-29.00
Cut structurals	41.00-42.50
Heavy turnings	38.00
Punchings & plate scrap	41.00-41.50
Electric furnace bundles	37.00-38.00

Cast Iron Grades (F.o.b. Shipping Point)

No. 1 cupola	40.00-41.00
Charging box cast	30.00-31.00
Stove plate	36.50-37.50
Heavy breakable cast	30.00-31.00
Unstripped motor blocks	34.00-35.00
Brake shoes	41.00
Clean auto cast	52.00
No. 1 wheels	46.00-47.00
Burnt cast	41.00
Drop broken machinery	42.00-43.00

Railroad Scrap

No. 1 R.R. heavy melt.	38.00-39.00
Malleable	nom.
Rails, 2-ft. and under.	46.00-47.00
Rails, 18 in. and under	46.00-47.00
Rails, random lengths	42.00-43.00
Cast steel	44.00
Uncut tires	43.00
Angles, splice bars	46.00-47.00
Rails, rerolling	46.00-47.00

ST. LOUIS

(Brokers' Buying Prices)

No. 1 heavy melting	*32.00*
No. 2 heavy melting	*32.00*
No. 1 bundles	*33.00*
No. 2 bundles	*30.00*
Machine shop turnings	*20.00*
Short shovel turnings	*22.00*

Cast Iron Grades

No. 1 cupola	*41.00-42.00*
Charging box cast	*34.00-35.00*
Heavy breakable cast	*30.00-32.00*
Unstripped motor blocks	*30.00-31.00*
Brake shoes	41.00
Clean auto cast	44.00
Burnt cast	37.00-39.00

Railroad Scrap

Malleable	38.00-40.00
Rails, 18-inch and under	55.00-56.00
Rails, random lengths.	39.00-40.00
Uncut tires	46.00
Angles, splice bars	47.00-48.00
Rails, rerolling	48.00-50.00

BUFFALO

No. 1 heavy melting	*41.50-42.00*
No. 2 heavy melting	*39.00-39.50*
No. 2 bundles	*37.00-37.50*
No. 1 bundles	42.00-43.00
No. 1 busheling	42.00-43.00
Machine shop turnings	*24.50-25.00*
Mixed borings, turnings	*31.00-31.50*
Short shovel turnings	*32.00-32.50*
Low phos.	*43.50-44.00*

Cast Iron Grades (F.o.b. Shipping Point)

No. 1 cupola	40.50-41.50
No. 1 machinery	44.50-45.00

Railroad Scrap

Rails, random lengths.	46.00-47.00
Rails, 2 ft. and under.	52.00-53.00

SEATTLE

(Delivered consumer plant)

No. 1 heavy melting	33.00
No. 2 heavy melting	29.00
No. 1 bundles	32.00
No. 2 bundles	26.00
No. 3 bundles	22.00
Machine shop turnings	15.00
Mixed borings, turnings	15.00
Short shovel turnings	15.00
Electric furnace, No. 1	40.00-41.00

Cast Iron Grades (F.o.b. Shipping Point)

No. 1 cupola	40.00
Heavy breakable cast	36.00-38.00
Unstripped motor blocks	29.00
No. 1 wheels	38.00-40.00

Railroad Scrap

Rails, random lengths.	38.00

SAN FRANCISCO

No. 1 heavy melting	*29.00*
No. 2 heavy melting	*25.00*
No. 1 bundles	*26.00*
No. 2 bundles	*23.00*
No. 1 busheling	*29.00*
Machine shop turnings	*11.00*
Mixed borings, turnings	29.00
Short shovel turnings	29.00
Cast iron borings	29.00
Cut structurals	38.00
Heavy turnings	34.00
Punchings & plate scrap	37.50
Electric furnace bundles	37.00

Cast Iron Grades

No. 1 cupola	40.00
Charging box cast	47.00
Stove plate	46.00
Heavy breakable cast	45.00
Unstripped motor blocks	41.00
Brake shoes	41.00
Clean auto cast	52.00
No. 1 wheels	47.00
Burnt cast	41.00
Drop broken machinery	52.00

Railroad Scrap

No. 1 R.R. heavy melt.	37.00
Malleable	55.00
Rails, 3-ft. and under.	42.00
Rails, 18-in. and under	45.00
Rails, random lengths.	39.00
Cast steel	40.00
Uncut tires	39.00
Angles, splice bars	42.00
Rails, rerolling	44.00

LOS ANGELES

No. 1 heavy melting	30.00
No. 2 heavy melting	24.00
No. 1 bundles	29.00
No. 2 bundles	24.00
Machine shop turnings	12.00

Cast Iron Grades (F.o.b. Shipping Point)

No. 1 cupola	38.00-41.00

HAMILTON, ONT.

(Delivered Prices)

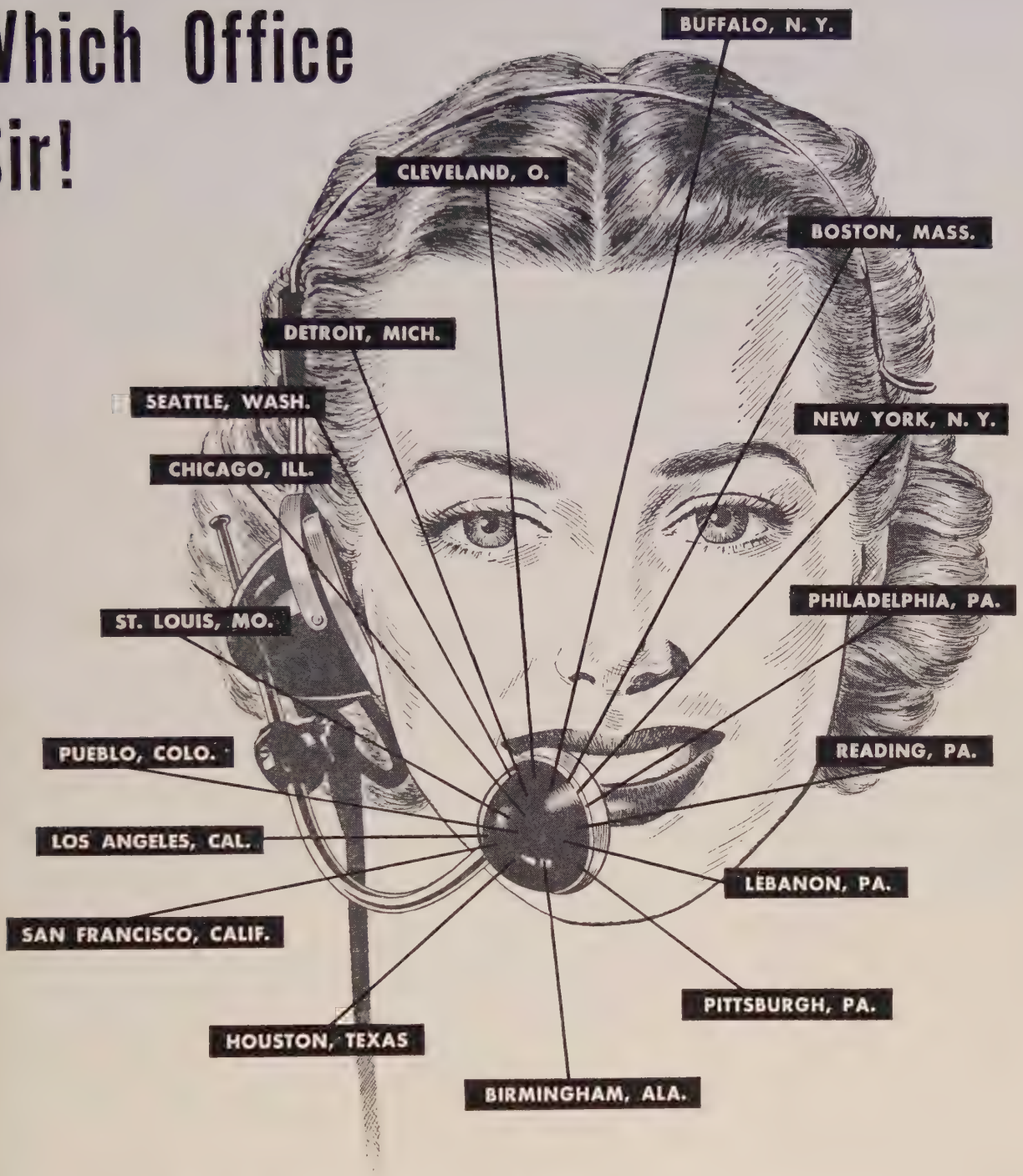
Heavy Melt.	$35.50
No. 1 Bundles	35.50
No. 2 Bundles	35.50
Mechanical Bundles	31.50
Mixed Steel Scrap	31.50
Mixed Borings, Turnings	28.50
Rails, Remelting	35.50
Rails, Rerolling	38.50
Busheling	28.00
Busheling new factory:	
Prep'd	33.50
Unprep'd	31.50
Short Steel Turnings	28.50

Cast Iron Grades

No. 1 Machinery Cast	50.00†

† F.o.b., shipping point.

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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Scrap . . .

Scrap Prices, Page 210

Cleveland — With the steel mills continuing to order new tonnage sparingly, at the same time exercising extreme selectivity in accepting shipments on old orders, scrap prices are sliding steadily lower. For the most part quoted prices are nominal in the absence of representative sales, and feeling in the trade is much lower prices will be necessary to generate sizable new buying soon.

Some trade interests consider the current market for No. 1 heavy melting steel in this district is $37.50 to $38. The majority of dealers and brokers, however, insist the market is more fairly quoted at $39 to $40, though agreeing prices may go lower before heavy buying resumes. Actually, some of the more pessimistic in the trade think a $30 price on No. 1 heavy melting is likely before the market touches bottom, especially should steel labor trouble develop over the next couple months.

Pittsburgh — Scrap continues to move at a slow rate in the Pittsburgh district. Steel companies are committed to take tonnage in both industrial and railroad scrap. Dealer scrap is expected, as a result, to move when mill inventories get lower. That day is not immediately close. Average estimates place it at about 45 days. A few isolated sales or offerings reflect the following prices: Machine shop turnings $26.50 to $27.50 and mixed borings and turnings the same. Short shovel turnings and cast iron borings both are quoted $31 to $32. Cast iron scrap is showing the effects of an increased supply of pig iron. Few purchases are reported. Offering prices on these grades is as follows: No. 1 cupola cast, $40 to $41, unstripped motor blocks $35 to $36, No. 1 machinery cast $49 to $50.

Boston — Steelmaking grades of scrap are quoted lower on some new buying by the largest district consumer. No. 2 heavy melting and No. 2 bundles are down relatively more than prime grades. Inventories with melters are substantial and one district steel producer took in no tonnage for more than a month. Watertown arsenal has bids on 500 tons of machine shop turnings on which bids are lower. Cast scrap is slow with no sign of recovery in prices.

New York—Brokers' buying prices have been further reduced on several important grades. While No. 2 heavy melting is unchanged at $30, No. 1 heavy melting has dropped to a range of $34 to $35, No. 2 bundles to $19, mixed borings and short turnings to $22 to $22.50, low phos structural and plate to $37 to $38 and shovel turnings to $22 to $22.50. Unstripped motor blocks have dropped to $22.50 to $23.

Some of these prices, such as for motor blocks, shovel turnings and low phos, are largely nominal, as trading is light. Actually there is little activity in any line and this is becoming more pronounced in yard collections as well as in sales, indicating that eventually this trend will level off.

Buffalo—Weakness prevails in the scrap market. The leading mill consumer placed orders for approximately 12,000 tons of steelmaking grades at $4 to $5 per ton below the level of previous transactions. Favorable weather and increased receipts by water are bearish market factors. In addition, new sales of No. 1 heavy melting are reported at declines of $1 to $2. Weakness continues in cast grades.

Philadelphia — District consumers of steel scrap are buying more or less on a hand-to-mouth basis, apparently confident that supply is adequate to meet needs as they arise. This attitude is reflected in a continued easy market tone, although prices over the past week have become more stable than in quite some time. No. 1 heavy melting steel is off to $42, delivered, but this is the only important change. No. 2 bundles are exceedingly easy but are nominally unchanged. Cast grades are also steady.

Detroit — Little new buying of scrap is reported being done by local mills, notably Ford and Great Lakes. Rotary Electric is out of the market for the month and McLouth may also be out for the month. Hardest to move are machine shop turnings, No. 2 bundles, short shovel turnings, punchings and plate scrap. Forecasters are predicting the market will remain soft for at least a couple months, and may drop farther before the pickup begins in the fall. Observers attribute the easiness in dealer scrap to heavy movement of industrial scrap as result of peak auto production.

Cincinnati—The majority of scrap prices declined further. Open hearth grades are off $5 from two weeks ago. At this time there is nothing to indicate the market will turn stronger soon.

St. Louis—Scrap prices continue to drop in response to sharply curtailed mill buying. One big consumer only last week released a holdup order in effect more than a month. It will spread shipments over a 30-day period. Another mill is buying in quantities 75 per cent under normal. The price situation and farming season is discouraging rural collections and yard receipts consequently are sharply down. Railroad offerings are substantially better but they too are running into price troubles, even those in good demand until recently. There have been sales of railroad heavy melting steel at $6 under ceiling.

Chicago—The scrap market here has deteriorated further under influence of limited buying and good supply. Exact prices are difficult to determine but major grades of open-hearth material are off at least $2 per ton to $38.

Birmingham — The district scrap market lost further ground this week with prices down. Most of the melting steel moving is going to other points and then not in large volume.

Los Angeles—Trade observers report the district scrap market weak, and at low ebb. Mill-posted prices, expected to be $1 to $4 lower on all grades, will undermine the market, and according to trade experts, put dealers in a financial "squeeze." Steel producers, holding substantial inventories, are reducing purchases to the bone. Two are out of the market altogether. Scrap dealers estimate Kaiser Steel Corp. Fontana Works scrap consumption is off 75 per cent.

San Francisco—Biggest news in this area currently is the continued weakness in scrap prices. No satisfactory explanation is forthcoming for a drop of $1 to $3 a ton. Tonnage is readily available, but the big question is what made the supply situation completely reverse itself in a few short months with consumption as great today as ever.

Seattle—The scrap market is unchanged. Prices are holding, and receipts are ample for current requirements.

Fluorspar . . .

Fluorspar Prices, Page 203

Cleveland—Prices on metallurgical grades of domestic fluorspar have been adjusted downward by some sellers. The 60 per cent grade now is quoted $38 per net ton, off $2; the 70 per cent grade $42.50, off 50 cents; the 72.5 per cent grade is quoted $44.

Large stocks held by the steel mills in recent months, as well as severe competition from imported material, chiefly Mexican spar, are reflected in the price adjustments. Sellers report seasonal buying by the steelmakers is beginning.

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7237

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ELIZABETH, N. J. McKEESPORT, PA.

Canada . . .

Hamilton, Ont.—Operations at the Steel Co. of Canada Ltd., for the year to date have been satisfactory and it is expected production will continue at a high rate for the next several months.

There has been no slackening in demand for bars, plates and other flat rolled products and none appears in the immediate future. However, there has been little improvement in sales of some wire products and other articles produced by the company.

Blast furnace "D" and four open-hearth furnaces placed in operation last December are giving satisfactory results, but full benefits will not be obtained until after the middle of the year, when all construction work will be completed. Orders for galvanizing equipment will be placed shortly, the equipment to be ready for operation early next year.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

2500 tons, second increment, research laboratory, Fort Monmouth, N. J., through Tandy & Allen, Hillsdale, N. J., general contractors, to Lehigh Structural Steel Co., Allentown, Pa.

1700 tons, nine bridges, New York state thruway, Orange-Rockland counties, New York, to Phoenix Bridge Co., Phoenixville, Pa., through M. A. Gammino Co., Providence, R. I., and associated contractors.

1200 tons, bridge, Bangor-Brewer, Me., to American Bridge Division, U. S. Steel Corp., Pittsburgh, through Robert Verrier Co., Portland, Me., general contractor.

500 tons, riveted plate girder bridge, Norwich, Conn., to Bethlehem Steel Co., Bethlehem, Pa., through Jones Construction Co., Columbia, Conn., general contractor.

350 tons, stop logs, etc., Dexter regulating dam, Oregon, to Puget Sound Bridge & Dredging Co., Seattle.

135 tons, two WF beam bridges, Warren, Vt., to Vermont Structural Steel Co., Burlington; Lambert Construction Co., Montpelier, general contractor.

100 tons or more, aluminum pilot plant, Springfield, Oreg., to Poole, McGonigle & Dick, Portland, Oreg.

100 tons or more, 423-ft. Montana state Bitterroot river bridge; general contract to Hansen & Parr, Spokane, Wash., low, $150,075.

100 tons, bridge, North Kingston, R. I., to American Bridge Division, U. S. Steel Corp., Pittsburgh, through S. & M. Construction Co., Providence, R. I.

STRUCTURAL STEEL PENDING

4400 tons, city hospital, Coney Island, New York city; bids closed May 6.

8800 tons, fabricated steel for bridges, Ohio.; bids in direct to Ohio Turnpike Commission, Columbus, O.; also 370 tons structural steel expansion joints.

1555 tons, structural steel channels, Corps of Engineers, Pittsburgh, inv. 399, Pittsburgh, May 11; this inquiry also includes 575 tons sheet steel.

1500 tons, steel arch type hangar, naval air station, Pensacola, Fla.; bids June 2.

500 tons or more, 488 steel transmission towers, 104.4 mile McNary-Maupin 300 kv line, Oregon; bids to Bonneville Power Administration, Portland, Oreg., May 14.

445 tons, Snake river bridge superstructure; bids May 19, Department of Interior, Palisades, Idaho.

400 tons, General Petroleum Co. oil refinery, Ferndale, Wash.; bids in to Bechtol Corp., general contractor.

400 tons, viaduct, New York, New Haven & Hartford railroad, Bridgeport, Conn.; also 200 tons piling casings.

300 tons, power plant addition, Elelson Air Field, Alaska; bids in to U. S. Engineer, May 6.

300 tons, Navy project, Bangor, Wash., general contract to Hall-Atwater Co., Seattle.

Unstated, super and substructures, Snake river bridge; bids to Bureau of Reclamation, Palisades, Idaho, May 21.

Unstated, hangar, Fairchild field, Washington state; bids to U. S. Engineer, Seattle, May 8.

Unstated, chip silo, barking building, wood preparation plant, Coos Bay Pulp Corp.; bids soon to Empire, Oreg.

Unstated, 156-ft. Montana state bridge, Cascade county; bids rejected; rebids will be asked.

Unstated tonnage, state thruway bridge work, Suffolk county, New York, bids May 21.

REINFORCING BARS . . .

REINFORCING BARS PLACED

1500 tons, bridges and highway, Orange-Rockland counties, New York thruway, New York, to Truscon Steel Co., Boston.

200 tons, Navy project, Kodiak, Alaska, to Bethlehem Pacific Coast Steel Corp., Seattle; Sam Bergerson, Tacoma, Wash., general contractor.

150 tons, Washington state freeway, Spokane, to Northwest Steel Rolling Mills Inc., Seattle; C. A. Powers, Spokane, general contractor.

100 tons, addition to Beaver Falls, Ketchikan, Alaska, power plant to Bethlehem Pacific Coast Steel Corp., Seattle.

REINFORCING BARS PENDING

1265 tons, Corps of Engineers, Pittsburgh, inv. 402; bids May 12.

540 tons, Garden State Parkway, contract 17, section 7, Middlesex county, New Jersey; bids May 21.

453 tons, state bridge, Philadelphia; bids June 5.

200 tons, Navy project, Bangor, Wash.; general contract to Hall-Atwater Co., Seattle.

140 tons, including shapes, Washington state highway projects; Snohomish and Lewis counties; bids to Olympia, May 12.

100 tons, Washington state road project, Lincoln county; bids to Olympia, May 19.

100 tons plus, garage, quarters, shops, etc., Kenai, Alaska, station; bids to U. S. Engineer, Seattle, June 9.

100 tons plus, 21,656 capacity stadium, Corvallis, Oreg.; bids to Oregon Board of Higher Education, May 22; major materials furnished by state; cost $186,000.

100 tons plus, waterfront arterial, seawall, etc., Ketchikan, Alaska; S. Birch & Sons and Lytle & Green, Seattle, joint low.

PLATES . . .

PLATES PENDING

525 tons, pile casings, viaduct, New York, New Haven & Hartford railroad, Bridgeport, Conn.

125 tons plus, 3680-feet, ¼ inch wall, 24-in. diameter, welded steel water supply pipe; bids in to Port Townsend, Wash., May 6.

Unstated, 5840 feet, 48-inch welded steel pipe and accessories, alternatives for precast reinforced concrete; bids May 11 to J. Hugo Aronson, governor and chairman of Montana Water Conservation Board, Helena, Mont.

RAILS, CARS . . .

RAILROAD CARS PLACED

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RAILROAD CARS PENDING

Bangor & Aroostook, 500 box cars; bids asked.

RAILS PENDING

450 tons, Navy project, Bangor, Wash.; general contract to Hall-Atwater Co., Seattle.

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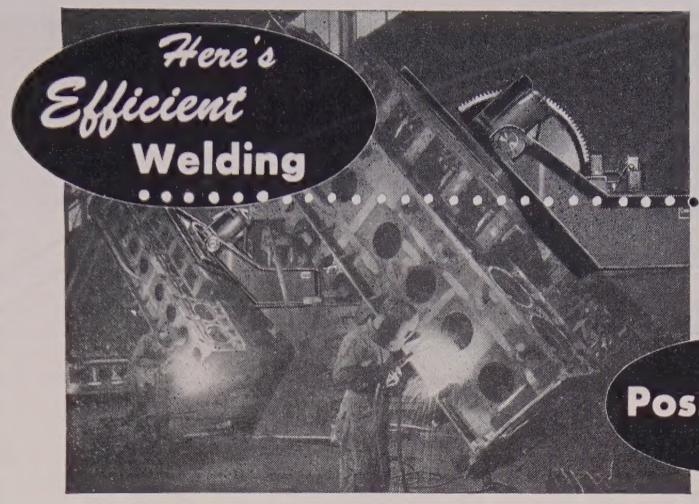
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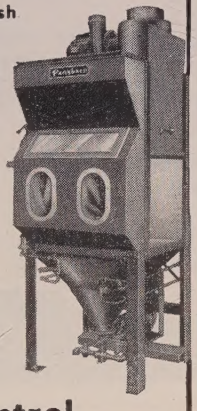


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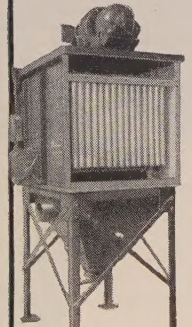
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GOOD EQUIPMENT BRINGS DOWN PRODUCTION COSTS

continuous

buttweld pipe mills

The expansion of the steel industry has been marked by great demand for Continuous Butt Weld Pipe Mills from Aetna-Standard. Recent installations include two mills in the new Fairless Works for ½" to 4" and one mill for Sharon Tube for ¼" to ¾" sizes.

Most of the Continuous Butt Weld Pipe Mills around the world carry the name of Aetna-Standard. Aetna designs, engineers and builds the mills complete from coil storage through shipping department . . . and supervises installation.

THE AETNA-STANDARD ENGINEERING COMPANY • PITTSBURGH, PA.

Aetna-Standard

PLANTS IN WARREN, OHIO • ELLWOOD CITY, PENNSYLVANIA



ASSOCIATED COMPANIES

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Aetna-Standard Engineering Company, Ltd., Toronto, Ontario, Canada.

M. Castellvi, Inc., New York, N. Y. — Mexico, Central and South America.

Societe de Constructions de Montbard, Paris, France — France, Belgium, Holland, Luxembourg, Switzerland.

Demag Aktiengesellschaft, Duisburg, Germany — Germany, Austria, Yugoslavia, Greece, Turkey, Egypt.

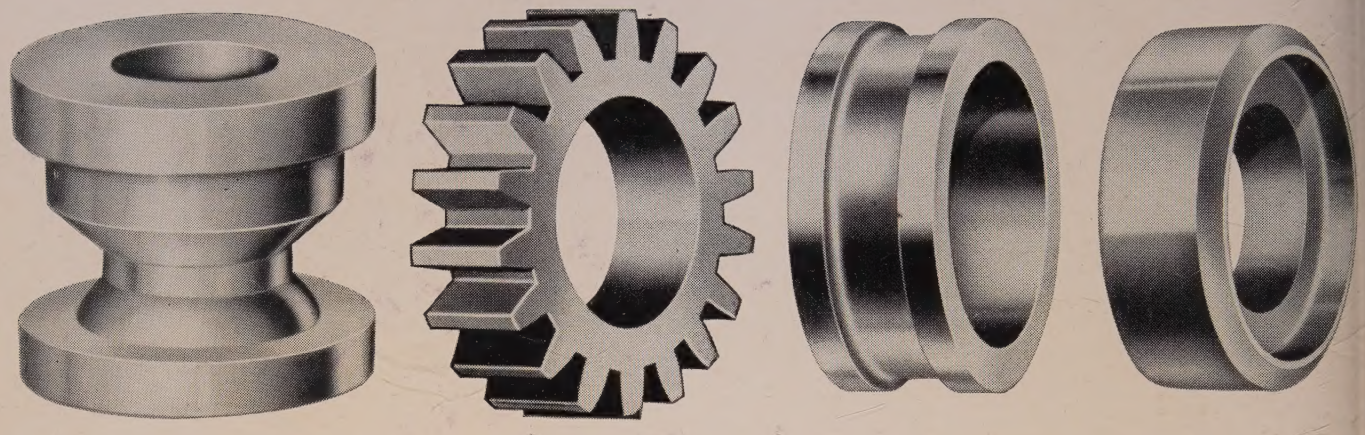
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Designers and Builders to the Ferrous, Non-Ferrous, Leather and Rubber Industries

If you make hollow parts



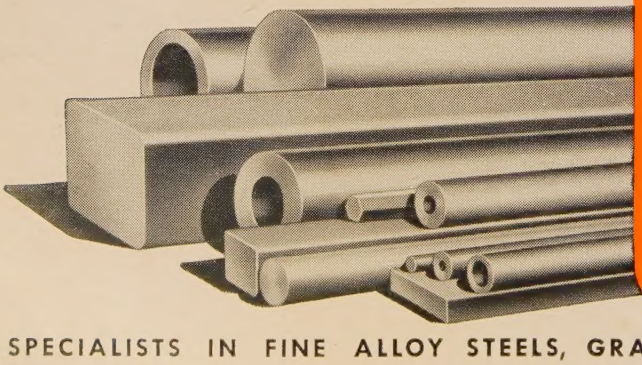
why pay top price for the holes?

HERE'S a way to save on the cost of the holes in your hollow cylindrical parts. Use Timken® seamless steel tubing. The hole is already there! You eliminate drilling, usually go right into finish boring as your first production step. You machine less metal, get more parts per ton of steel. And the screw machine stations normally used for drilling can be released for other jobs.

And the Timken Company's tube engineering service helps you save even more steel! It recommends the most economical tube size for your job—guaranteed to clean up to your finished dimensions.

You also get fine forged quality in Timken seamless steel tubing. The piercing process by which it is made is basically a forging operation. It gives the tubing a uniform spiral grain flow for greater strength, and a refined grain structure which brings out the best in the quality of the metal. And due to the Timken Company's rigid quality control, this quality is uniform from tube to tube and heat to heat. The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH



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STEEL

SPECIALISTS IN FINE ALLOY STEELS, GRAPHITIC TOOL STEELS AND SEAMLESS TUBING